

**ADDENDUM 1 TO
RESOURCE CONSERVATION AND
RECOVERY ACT (RCRA)
FACILITY INVESTIGATION REPORT
FOR IRP SITES NO.17, NO.18, AND NO.21**

**VOLUME II
APPENDICES A-L**

**148th FIGHTER GROUP
MINNESOTA AIR NATIONAL GUARD
DULUTH AIR NATIONAL GUARD BASE
DULUTH, MINNESOTA**

OCTOBER 1995



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| 13. ABSTRACT (Maximum 200 words) Addendum 1 to Resource Conservation and Recovery Act (RCRA) Facility Investigation Report for IRP Sites 17, 18, and 21 Volume II, appendices A-L. This report presents the results of the investigation activities conducted in July 1994, October 1994, and May 1995 at IRP sites 17, 18 and 21, located at the 148 FG, Duluth, MN. The Minnesota Pollution Control Agency (MPCA) responded to the findings of the RFI report (OPTECH 1992) with recommendations for further investigations at these sites. The results are that contamination exists at all three sites and a Corrective Measures Study (CMS) be completed to provide alternatives for remediation. | | | | |
| 14. SUBJECT TERMS Installation Restoration Program; Resource Conservation and Recovery Act (RCRA) Air National Guard; Facility Investigation; Duluth ANG, Duluth, MN | | | 15. NUMBER OF PAGES 718 | |
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DULUTH, MINNESOTA**

OCTOBER 1995

Prepared For
**HQ ANG/CEVR
ANDREWS AFB, MARYLAND**

Prepared By
**Operational Technologies Corporation
4100 N.W. Loop 410, Suite 230
San Antonio, Texas 78229-4253
(210) 731-0000**

APPENDIX A
STATEMENT OF WORK

SECTION A.1 INTRODUCTION

The scope of work of the RCRA Facility Investigation conducted at the Minnesota Air National Guard Base, Duluth, Minnesota is outlined in the final permit for a hazardous waste storage facility issued to the Minnesota Air National Guard (ID#MND0007773341) in September, 1990 by the Minnesota Pollution Control Agency. A copy of the final permit is presented in Appendix A of the RCRA Facility Investigation of Solid Waste Management Units (OpTech, 1992). A copy of the Request for Cost Proposal and Statement of Work for the Addendum 1 to RCRA Facility Investigation for Sites No. 17, 18, and 21 is presented as follows.



DEPARTMENTS OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
5109 LEESBURG PIKE, FALLS CHURCH, VIRGINIA 22041-3201



22 June 1993

RECEIVED

JUN 28 1993

NGB-AQC-E (Catia Ellsworth)

OPTECH

SUBJECT: Request for Cost Proposal, Contract DAHA90-91-D-0002,
D.O. 0001, Addendum #1, IRP Services, Duluth ANG,
Minnesota

OPTECH, INC.
4100 N.W. LOOP 410
SUITE 230
SAN ANTONIO, TX 78229-4253

Enclosed is the Statement of Work for "Addendum #1, for IRP Services, for Duluth, Minnesota".

Please prepare a cost estimate for this effort with any necessary backup material that may be necessary to substantiate your costs.

Period of performance for this effort is 9 months from the official Notice to Proceed.

a. **DIRECT LABOR:** Indicate your rationale for the mix of labor categories and skill levels to be employed and the number of hours per category proposed. Include also all subcontracted hours with the same rationale.

b. **TRAVEL:** Although the delivery order will indicate a "not to exceed" amount, please provide an estimated total travel cost, to include number of trips. Proposed travel should indicate a complete breakdown of each trip: origin and destination, per diem costs, rental car costs, airfare, number of travelers, labor categories of travelers.

c. **OTHER COSTS:** If costs other than direct labor and travel are involved, please provide a complete breakdown and justification for those costs. Example: duplication costs should be supported by number of copies, number of pages, cost per page, etc.

Please forward your cost proposal not later than 30 Jun 93. If you have questions, please contact Catia Ellsworth at (703)756-8939.

Mary Ellen Lewis MAF. NGB.

MARY ELLEN LEWIS
Contracting Officer

Enclosure

Contract No. DAHA90-91-D-0002
Delivery Order No. 0001
IRP Services for Duluth ANG, MN

ADDENDUM # 1
TO THE
STATEMENT OF WORK

Date: 10 Jun 93

Modify the Statement of Work (SOW) as follows, specifically reference Tasks 2, 3, and 4 and Table 1:

1. Task 2 - The Contractor shall write an addendum to the existing Facility Investigation Work Plan reflecting the additional field work requested by the Minnesota Pollution Control Agency (MPCA) [re MPCA ltr dated 9 Dec 92] and validated by ANGR/CEVR in their April 1993 letter of response. "Draft" and "Final" RFI Workplan Addendums will be produced and considered as Task 2A and 2B respectively (Deliverables 1A1 and 1B1).

2. Task 3 - The Contractor shall perform all work as outlined in the addendum to the existing Facility Investigation Work Plan, to include:

a. That work required to define the areal extent of SVOCs and TPH contamination at Site # 17.

b. An additional round of soil sampling to confirm the results of the existing RFI Report in the area of concern identified in the Jacobs Engineering Report, re Site #s 18 and 19.

c. That work required to define the areal extent of VOCs, SVOCs, 4,4-DDD, metals and TPH in Site # 21 sediments and soils; periodic sampling of the associated site groundwater for VOCs and Barium, and installation, development and sampling of one additional downgradient monitoring well to determine the downgradient extent of TCE. Said Field Work shall be considered as Task 3A.

3. Task 4 - The Contractor, following completion of all work outlined in the addendum to the existing Facility Investigation Work Plan, shall prepare an Amendment (supplement) to the existing RFI Report documenting the results of the field investigation. This supplemental report shall be prepared in "draft" [Task 4A] and "final" [Task 4B] forms and shall be identified as Deliverables 1A2 and 1B2 in Table 1 to the existing SOW. Based upon the results documented in the existing RFI Report and the associated supplemental report, the Contractor shall also prepare appropriate "draft" and "final" No Further Action Decision Documents (NFADDs) for Site #s 17, 18, 19, 21, and 22 or appropriate recommendations for initiation of a Corrective Measures Study Report as outlined in Task 5 of the existing SOW. If said reports results in the preparation of any NFADDs, they shall be prepared (under separate cover) and considered to be part and parcel of Deliverables 1A2 and 1B2. In addition to the above, the Contractor shall plan to attend one (1) Review Meeting (Task 4C) to discuss comments from the MPCA regarding the "Draft RFI Report Amendment". This meeting is necessary to incorporate any regulatory agency comments/suggestions into the final report.

4. The Contractor shall submit to NGB Monthly Progress Reports (Task 4D) as outlined in paragraph 4.0 of the existing SOW. For the purposes of this SOW Addendum said reports shall be considered as Deliverable 4A. It is estimated that the period of performance for the tasks outlined in this SOW Addendum shall be nine (9) months from NTP.

5. Table 1 - Table 1 is hereby modified to include the following Deliverables:

- a. Deliverable 1A1 - Draft RFI Workplan (Addendum)
- b. Deliverable 1B1 - Final RFI Workplan (Addendum)
- c. Deliverable 1A2 - Draft RFI Report (Amendment) & Associated NFADDs
- d. Deliverable 1B2 - Final RFI Report (Amendment) & Associated NFADDs
- e. Deliverable 4A - Monthly Progress Reports

Time allowed for Tasks and Copies Required for Tasks 2A and 4A are to be the same as those listed for Deliverable 1A; for Tasks 2B and 4B the same as those listed for Deliverable 1B; and for Task 4D the same as that listed for Deliverable 4. Note 1 applies to Deliverables 1A1 and 1A2, Note 2 applies to Deliverables 1B1 and 1B2, and Note 3 applies to Deliverable 4A.



DEPARTMENT OF THE AIR FORCE

AIR NATIONAL GUARD READINESS CENTER
ANDREWS AIR FORCE BASE, DC 20331-6008

FROM: CEVR

SUBJ: Modification of Contract # DAHA90-91-D-0002, Delivery Order #0001
IRP Services for the ANG, Duluth, MN Statement of Work

TO: NGB-AQC-E (Ms Catia Ellsworth)

1. Request the following modifications be made to the subject Statement of Work (SOW), specifically reference Tasks 2, 3, and 4 and Table 1:

a. Task 2 - The Contractor shall write an addendum to the existing Facility Investigation Work Plan reflecting the additional field work requested by the Minnesota Pollution Control Agency (MPCA) [re MPCA ltr dated 9 Dec 92] and validated by ANGR/CEVR in their April 1993 letter of response.

b. Task 3 - The Contractor shall perform all work as outlined in the addendum to the existing Facility Investigation Work Plan, to include:

1) That work required to define the areal extent of SVOCs and TPH contamination at Site # 17.

2) An additional round of soil sampling to confirm the results of the existing RFI Report in the area of concern identified in the Jacobs Engineering Report, re Site #s 18 and 19.

3) That work required to define the areal extent of VOCs, SVOCs, 4,4-DDD, metals and TPH in Site # 21 sediments and soils; periodic sampling of the associated site groundwater for VOCs and Barium, and installation/development/sampling of one additional downgradient monitoring well to determine the downgradient extent of TCE.

c. Task 4 - The Contractor, following completion of all work outlined in the addendum to the existing Facility Investigation Work Plan, shall prepare a supplement to the existing RFI Report documenting the results of the field investigation. This supplemental report shall be prepared in "draft" and "final" forms and shall be identified as Deliverables 1A1 and 1B1 in Table 1 to the existing SOW. Based upon the results documented in the existing RFI Report and the associated supplemental report, the Contractor shall also prepare appropriate "draft" and "final" No Further Action Decision Documents (NFADDs) for Site #s 17, 18, 19, 21, and 22 or appropriate recommendations for initiation of a Corrective Measures Study Report as outlined in Task 5 of the

existing SOW. If said reports result in the preparation of any NFADDs, they shall be prepared (under separate cover) and considered to be part and parcel of Deliverables 1A1 and 1B1.

d. Table 1 - Table 1 is hereby modified to include the following Deliverables:

1) Deliverable 1A1 - Draft Supplemental Facility Investigation Report and NFADD's.

2) Deliverable 1B1 - Final Supplemental Facility Investigation Report and NFADD's.

Time allowed for Task and Copies Required are to be the same as those listed for Deliverables 1A and 1B. Notes 1 and 2 apply to Deliverables 1A1 and 1B1 respectively.

2. Refer to Atch 1 for the Government Estimate for the additional work outlined in paragraph 1 to this letter. Any questions concerning this request for modification of the existing SOW should be directed to the ANGRC/CEVR POC and COR for Delivery Order # 0001, Lt.Col., Michael C. Washeleski, at DSN: 858-8144 or Comm (301) 981-8144.

GARY L. HINKLE, Chief
Installation Restoration Prg Br
Environmental Division

1 Atch: Gov't Estimate

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APPENDIX B
PROCEDURES AND PROTOCOLS

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PROCEDURES AND PROTOCOLS

FIELD INVESTIGATION STRATEGY

Mobilization Activities

Mobilization included efforts by the Minnesota Air National Guard (MNANG) and its contractors to prepare for field activities. All field personnel were equipped with appropriate personal safety equipment, safety training, and field monitoring equipment.

Prior to any drilling activities, the Base Civil Engineer was consulted for utility locations. A general review of underground utility maps for each area was conducted. Digging Permits were completed and submitted to the appropriate Base personnel for approval.

Huntingdon Engineering & Environmental Corporation, of Duluth, Minnesota was retained as the drilling contractor for drilling boreholes and for installation of the monitoring well. The selected drilling contractor mobilized personnel and equipment that met or exceeded MNANG and the Minnesota Department of Health (MDH) requirements.

Southern Petroleum Environmental Laboratory, Inc. of Houston, Texas was retained as a qualified CLP laboratory to perform analysis. Provisions were made for proper sample containers, labels, chain-of-custody forms, sample stabilization and preservation, insulated sample shipping containers, and packing materials.

RREM, Inc., of Superior, Wisconsin was retained as the surveying contractor. All soil boring locations, soil sediment locations, and the monitoring well were surveyed. The elevations of the well and borings are recorded on the drilling logs in Appendix D.

Decontamination

A decontamination area was provided at the vehicle maintenance area. The drill rig and drilling equipment was decontaminated prior to mobilization to each site. Decontamination procedures involved thoroughly steam cleaning the drilling equipment, particularly the downhole tools such as augers, drill bits, and drill steel.

Decontamination stations were set up at each work site for decontamination of sampling equipment, well casing, and screens. All sampling equipment was decontaminated prior to each sampling event. Decontamination procedures involved washing sampler parts (split-spoon, hand auger, etc.) in water with Alconox soap, a potable water rinse, a thorough rinse with deionized water, and a final rinse with methanol.

SUBSURFACE INVESTIGATION

Twenty-four soil borings, four soil sediment samples, and one monitoring well were drilled and sampled at Duluth ANGB (CERCLA Sites 17, 18, and 21) to identify subsurface geologic and hydrogeologic conditions and to inspect for indications of contamination in the soil and groundwater. Soil borings, soil sediment samples, and the monitoring well were installed during

the period between July 10, 1994 and July 27, 1994 and again during the period between October 3, 1994 and October 7, 1994. All drilling at Site 17 and Site 21 was performed using hollow stem auger methods. Sampling at Site 18 was done with a hand auger.

The drilling program included 11 soil borings at Site 17, 2 hand augured soil borings at Site 18, and 11 soil borings, 4 soil sediment samples, and 1 monitoring well at Site 21. The sampling and analytical program is summarized in Tables 2.2, 2.3, 2.4, 2.5, 2.5. The soil borings were plugged back to surface with cement grout upon completion of the sampling. The monitoring well was completed with stainless steel screens and risers.

Borehole Logging and Sampling

An onsite geologist recorded the lithology during the drilling of each borehole. A field log recorded the following information for each well or boring:

Date.

Well or boring identification number and location.

Nominal hole diameter.

Name of driller and geologist.

Sampling method.

Depth interval from which each formation sample was taken.

Number of SPT blows.

PID readings.

Reference elevations for all depth measurements.

Depth of each change of stratum.

Description and classification of the material encountered according to the Unified Soils Classification System, or standard rock nomenclature, as appropriate.

Depth at which groundwater is first encountered while drilling.

Depth of complete well or borehole.

Location of any fractures, joints, cavities, weathered zones identified.

Depth of any grouting or sealing, and the amount of cement and/or bentonite used.

Depth and type of well casing.

Description of well screen and riser pipe.

Depth to water before development begins.

Depth to top of screen.

Static water level upon completion of the well and after development.

Pertinent construction details.

Description of any difficulties encountered during well drilling or construction.

Documentation of PID, pH, and specific conductance meter calibration.

Temperature, pH, and specific conductance measurements for initial groundwater sampling and for subsequent samples.

Signatures of those performing the work.

Soil from the monitoring well boring was collected with decontaminated split spoon samplers for PID measurements, GC analysis, and lithology descriptions only.

Drilling and Sampling Procedures

Soil Borings

Soil borings were installed at CERCLA Sites 17, 18, and 21. The soil borings at Sites 17 and 21 were drilled with a rig equipped with continuous flight 6" x 4-1/4" hollow-stem augers. The soil borings at Site 18 were drilled with a hand auger. Decontaminated auger sections were used on each borehole. Decontamination of all the augers used at a site was performed before mobilizing to each site. Soil samples were collected and field screened at five foot intervals. A stainless steel California-style, split spoon sampler equipped with four 6-inch long, 2.5-inch diameter brass sleeves was used for sampling immediately below the surface and immediately above the water table. These samples were submitted for laboratory analysis. The depth of the soil test borings was limited to the depth where saturated alluvium was encountered. Actual sample depths submitted for laboratory analysis are discussed in Section 3 and shown on the borehole logs included in Appendix D. Soil collected in the brass sleeves that was not needed for laboratory analysis was used for PID headspace readings, GC analysis, and for lithology descriptions. The California-style split spoon sampler was decontaminated before each sampling event. New brass sleeves were used for each sampling event.

Upon completion of the sampling, the borehole was grouted back to the surface with Portland cement. Each borehole was staked for coordinate location and elevation by the surveyor.

Monitoring Well

Monitoring well 021-026MW was installed at CERCLA Site 21. The monitoring well was drilled with a drill rig equipped with continuous flight 8" x 6-1/4" hollow stem augers. Decontaminated auger sections were used on the borehole. Decontamination of all the augers used at a site was performed before mobilization. A split spoon sampler was employed at a point just below the surface and at 5-foot depth intervals thereafter. Sample depths are discussed in Section 3 and shown on the borehole logs included in Appendix D. Soil samples were collected at these points for headspace readings with a PID, GC analysis, and for lithology descriptions. Split spoon samplers were decontaminated before each sampling event.

The monitor well was constructed with 2-inch diameter, stainless steel, flush coupled and threaded casing, and wire wrapped stainless steel screen. The screen slot size was 0.010 inch. All pipe was decontaminated before placing it into the well bore. The well bore was completed as follows:

The well was drilled to a total depth of approximately 12-feet into the saturated zone.

The bottom 2-feet of the well bore was packed with sand.

A 10-foot wire wrapped stainless steel screen with bottom cap and stainless steel riser of an appropriate length above the screen was placed on top of the sand in the well bore.

Due to well construction restraints, the top of the screened interval was set coincident with the measured groundwater depth.

A tremie pipe was used to place sand around the well screen and riser up to a point approximately 5-feet below ground level.

A 2-foot bentonite seal was set above the sand pack and approximately 2-foot of cement was brought back to surface.

A steel protective riser with a locking top was placed over the top of the well and three guard posts were installed around the well.

The well was developed by bailing the well with a decontaminated polyvinyl chloride (PVC) bailer until pH, temperature, and conductivity stabilized. Once the well had recovered, the water level was measured. A photograph of a water sample from the well was taken and the pH, temperature, and conductivity were measured.

Approximately three well volumes were removed before sampling. Water samples were obtained using a decontaminated teflon bailer. The samples were collected in appropriate containers with preservatives if required and sent to the laboratory for analysis. Actual well completion diagrams are included in Appendix E. Monitor well coordinates and elevation were located by the surveyor.

Monitor Well Development and Groundwater Sampling

The monitor well was developed by gentle surging and bailing. The development water was collected in drums. Three existing wells were sampled along with the new monitor well. Wells were bailed with decontaminated PVC bailers until the water became clear, and the pH, specific conductance and temperature stabilized. Prior to collecting a water sample, three well volumes were bailed from each well and collected in drums. The wells was allowed to recover. Decontaminated teflon bailers were used to collect water samples.

Groundwater samples were collected from all monitor well at CERCLA Site 21 on July 25, 1994 and again on October 6, 1994. Photographs of water samples were taken and the pH and specific conductance were measured at each well. Samples were placed in coolers and chilled for shipment to the laboratory for analysis. A trip blank was included in each cooler sent to the laboratory. One duplicate sample was collected for every ten samples. One matrix spike and matrix spike duplicate sample was collected for every twenty samples. One equipment rinseate blank sample was collected for every ten samples. One field blank sample consisting of deionized water was collected during each sampling episode. One field blank sample consisting of base tap water was collected during the October sampling round. Chain-of-custody records were maintained for all samples.

SURFACE INVESTIGATION

Surface Sediment Sampling Procedures

Surface sediment samples were collected at CERCLA Site 21. Sampling was conducted on July 26, 1994 and again on October 4, 1994. Samples were collected using a decontaminated stainless steel hand auger equipped with two 5-inch long, 2-inch diameter brass sleeves to minimize the loss of volatile constituents. The brass sleeves were sealed with aluminum foil, Teflon tape, and plastic caps. The sleeves were then placed in coolers and chilled for shipment to the laboratory for analysis. A trip blank was included in each cooler sent to the laboratory. One duplicate sample was collected for every ten samples. One matrix spike and matrix spike duplicate sample was collected for every twenty samples. Chain-of-custody records were maintained for all samples.

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APPENDIX C
BORING LOGS

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BORING LOGS

INTRODUCTION

Boring log diagrams have been compiled for each borehole location drilled during this study. Diagrams are presented in numerical order within each site. The borehole identification is keyed to the site number (017-01BH), borehole (BH), or monitoring well designation (MW). The diagrams combine in one page both a verbal and graphical illustration of the lithology encountered during drilling, water level data encountered during drilling and surveyed elevation of the ground surface at the borehole location.

Drilling records are organized sequentially by number for boreholes and the monitor well. The borehole identification is keyed to the site number and borehole type such as soil boring for acoustic topography survey (BH) or monitoring well designation (MW).

The soil core was scanned for volatile organic compounds prior to describing the soil core and results were recorded on the boring logs. As soon as the soil core was removed from the sampling assembly, a portable OVM Model 580B photoionization detector was used to monitor for volatile organic compounds and a portable HMX251 explosimeter was used to monitor the lower explosive limit and percent oxygen.

The sample description includes the primary major component or components, color, consistency, relative density, texture, moisture and observations of each distinct lithologic change encountered. Each distinct lithologic change that was encountered was defined by the Unified Soil Classification System (USCS) which is based on texture, sorting of clasts and plasticity of soils. The color was determined by visually comparing the color of the sample with the Munsell Soil Color Charts. The texture was visually estimated and described using the following semi-quantitative adjectives:

| <u>Adjective</u> | <u>Estimated Percent of Total Sample</u> |
|------------------|--|
| Trace | 0 - 5 |
| Little | 5 - 12 |
| Some | 12 - 35 |
| And | 35 - 50 |

These adjectives precede the lithology, such as *little* clay (5-12% clay) or *some* sand (12-35% sand).

The classification: sand, granule, cobble, and boulder, was assigned using the grain-size scale given in the USCS. Gravel clast sizes, boulder, cobble, and pebbles, were measured using a steel tape in the field. On the original field lithologic logs, clasts that were 4 inches or greater in size and those that were from 2 to 4 inches in size were reported as boulders and cobbles, respectively.

The fine fraction was described using one of the following terms: silt, silt and clay, or clay. These are field terms and take into account plasticity as well as grain size. The distinction between clay and silt was based on how easily a small piece of soil could be rolled into a thin ribbon. Clay can easily be smeared into a ribbon when wet while silt is smeared with more difficulty. A dry sample of clay is difficult to crush with fingers while a dry sample of silt is more easily crushed.

LITHOLOGIC LOGS

Lithologic symbols are derived and generalized from the USCS shown in Figure C.1.

In the boring logs that follow, the column headings have the following meanings:
















| | |
|-------------------|--|
| Depth: | Depth in feet below surface. |
| Blows: | The number of blows required to drive a split-spoon sampler an additional 24 inches into the ground beyond the initial 6 inch set. |
| Field Headspace: | The reading of photo-ionizable compounds detected in the soil sample by a photo-ionization detector. |
| Samples: | The interval of sample cored below land surface. |
| Percent Recovery: | The percentage of sample recovered in the split-spoon sampler per sampling run. |
| USCS: | Unified Soil Classification System based on texture, sorting of clasts and plasticity of soils. |

REFERENCES

- Casagrande, A., 1948. Classification and identification of soils. Transactions of the American Society of Civil Engineers 113:901.
- Folk, R.L., 1980. Petrology of Sedimentary Rocks. Hemphill Publishing Company. Austin, TX. p. 182.

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KEY TO BORING LOG SYMBOLS

| UNIFIED SOIL CLASSIFICATION SYSTEM - ASTM D2487 | | | | | |
|--|---|---------------------------------------|--------------------|---|---|
| MAJOR DIVISIONS | | | SYMBOL/ GRAPHIC | | DESCRIPTIONS |
| COARSE-GRAINED SOILS (>50% Smaller Than #200 Sieve) | GRAVELS (More than 50% of coarse fraction is larger than the #4 sieve size.) | Clean gravels with little or no fines | GW |  | Well-Graded Gravels, Gravel - Sand Mixtures |
| | | | GP |  | Poorly Graded Gravels, Gravels - Sand Mixtures |
| | | Gravels with over 12% fines | GM |  | Silty Gravels, Poorly Graded Gravel-Sand-Clay Mixtures |
| | | | GC |  | Clayey Gravels, Poorly Graded Gravel-Sand-Clay Mixtures |
| | SANDS (More than 50% of coarse fraction is smaller than the #4 sieve size.) | Clean sands with little or no fines | SW |  | Well-Graded Sands, Gravelly Sands |
| | | | SP |  | Poorly Graded Sands, Gravelly Sands |
| | | Sands with over 12% fines | SM |  | Silty Sands, Poorly Graded Sand-Silt Mixtures |
| | | | SC |  | Clayey Sands, Poorly Graded Sand-Clay Mixtures |
| FINE-GRAINED SOILS (>50% Smaller Than #200 Sieve) | SILTS AND CLAYS (Liquid limit less than 50) | | ML |  | Inorganic Silts and Very Fine Sands, Silty or Clayey Fine Sands |
| | | | CL |  | Inorganic Clays of Low to Medium Plasticity: Gravelly, Sandy or Silty Clays; Lean Clays |
| | | | OL |  | Organic Clays and Organic Silty Clays of Low Plasticity |
| | SILTS AND CLAYS (Liquid limit greater than 50) | | MH |  | Inorganic Silts, Micaceous or Diatomaceous Fine Sandy or Silty Soils, Elastic Silts |
| | | | CH |  | Inorganic Clays of High Plasticity Fat Clays |
| | | | OH |  | Organic Clays of Medium to High Plasticity, Organic Silts |
| HIGHLY ORGANIC SOILS | | | Pt |  | Peat and Other Highly Organic Soils |



Sample retained for on-site screening.



Sample prepared for laboratory analysis.



Water Table Level.

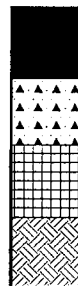
PID Photo-Ionization Detector readings (ppm).

ND Parameter Not Detected

NA Measurement Not Applicable, Groundwater Not Detected

- No Measurement Performed

NR No Sample Recovery



Asphaltic Concrete



Portland Cement Concrete



Cement Grout



Boulders or Bedrock

DRAFT
FIGURE C.1

F:\FORMS\KEYLOG2

KEY TO BORING LOG SYMBOLS

Duluth Air National Guard Base
Duluth, Minnesota

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1994

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DULUTH, MINNESOTA, SITE 17

O P T E C H

OPERATIONAL TECHNOLOGIES
CORPORATION

LOG OF BORING 017-10BH

| | | | |
|------------------|-------------------------------------|--------------------|-------------------------------------|
| Project No.: | 1308-101 | Sampling Method: | Stainless-Steel Split-Spoon Sampler |
| Logged By: | Kathryn Pritchett | Depth Drilled: | 10.0 ft. |
| Drilling Co.: | Huntingdon Engineering and Environ. | Depth To Water: | 4.5 BLS |
| Driller: | Jim Saugestad/Steve Sterk | Date Measured: | 07/19/94 |
| Date Drilled: | 07/19/94 | Surface Elevation: | 1412.13 ft. |
| Drilling Method: | Hollow-Stem Auger | | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|----------------------|----------|------------|---------|---------|---|-----------------|---------------|---------------|------------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) |
| 2 4 10 6 | | 40 | | | Silt, some peat, dark yellowish to grey brown, moist-dry. | - | - | - | - |
| 2 5 6 100 | | 70 | | | Silt and peat, little clay, trace gravel, granule-sized clasts, medium grey brown to dark yellowish-brown, firm, soft, moist-wet. | 0 | 0 | ND | ND |
| | | | | | Silt, trace to little clay, little to some gravel, cobble-sized clasts, dark yellowish-brown, firm, soft, wet. | | | | |
| 43 23 29 25 | | 75 | | | Silt, trace to little sand, little to some gravel, trace clay, cobble-sized clasts, dark yellowish-brown, firm, wet. | 0 | 0.3 | ND | ND |
| 10 | | | | | Boring Terminated at 10 ft. - Borehole Abandoned by Procedures Stated in Work Plan. | | | | |

DULUTH, MINNESOTA, SITE 17

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| | | | |
|-------------------------|--|---------------------------|--|
| Project No.: | 1308-101 | Sampling Method: | Stainless-Steel Split-Spoon Sampler |
| Logged By: | Kathryn Pritchett | Depth Drilled: | 10.0 ft. |
| Drilling Co.: | Huntingdon Engineering and Environ. | Depth To Water: | 5.0 BLS |
| Driller: | Jim Saugestad/Steve Sterk | Date Measured: | 07/19/94 |
| Date Drilled: | 07/19/94 | Surface Elevation: | 1410.77 ft. |
| Drilling Method: | Hollow-Stem Auger | | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|-------------|----------|------------|---------|-----------|--|-----------------|---------------|---------------|------------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) |
| 3 | | | X | [Pattern] | Silt, little sand, trace to little clay, little gravel, pebble-sized clasts, dark yellowish-brown, soft, moist-dry, roots. | 0 | 0 | 25 | ND |
| 6 | | | | | | | | | |
| 4 | | | X | [Pattern] | Silt and peat, trace to little clay, medium-grey brown, soft, moist. | | | | |
| 4 | | | | | | | | | |
| | | | X | [Pattern] | | | | | |
| | | | | | | | | | |
| | | | X | [Pattern] | | | | | |
| 1 | | 60 | X | [Pattern] | Silt and peat, little clay, trace gravel, pebble-sized clasts, medium-grey to olive brown, soft, moist-wet. | 0 | 0 | ND | ND |
| 3 | | | X | [Pattern] | | | | | |
| 3 | | | | | | | | | |
| 5 | | | X | [Pattern] | | | | | |
| 6 | | | | | | | | | |
| | | | X | [Pattern] | | | | | |
| | | | | | | | | | |
| | | | X | [Pattern] | | | | | |
| | | | | | | | | | |
| 2 | | 75 | X | [Pattern] | Silt, some sand, little gravel, little clay, cobble-sized clasts, dark yellowish-brown, soft, wet. | 0 | 0 | ND | ND |
| 6 | | | | | | | | | |
| 4 | | | X | [Pattern] | | | | | |
| 4 | | | | | | | | | |
| | | | X | [Pattern] | | | | | |
| | | | | | | | | | |
| 10 | | | | | Boring Terminated at 10 ft. - Borehole Abandoned by Procedures Stated in Work Plan. | | | | |

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LOG OF BORING 017-12BH

| | | | |
|------------------|-------------------------------------|--------------------|-------------------------------------|
| Project No.: | 1308-101 | Sampling Method: | Stainless-Steel Split-Spoon Sampler |
| Logged By: | Kathryn Pritchett | Depth Drilled: | 10.0 ft. |
| Drilling Co.: | Huntingdon Engineering and Environ. | Depth To Water: | 4.5 BLS |
| Driller: | Jim Saugestad/Steve Sterk | Date Measured: | 07/19/94 |
| Date Drilled: | 07/19/94 | Surface Elevation: | 1411.04 ft. |
| Drilling Method: | Hollow-Stem Auger | | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|----------------------|----------|------------|---------|---|---|-----------------|---------------|---------------|------------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) |
| 5 24 14 9 | | 40 | |  | Silt, trace clay, little sand, little gravel, pebble-sized clasts, loose, moist-dry, roots, no odor. | 0 | 0 | 21 | ND |
| 6 7 11 12 | | 70 | |  | Silt and peat, little to some clay (olive color), medium grey to olive brown, soft, firm, moist-wet, wood fragments, no odor. | 0 | 0 | 20 | ND |
| | | | |  | Silt and sand, little gravel, trace clay, pebble-sized clasts, dark yellowish to grey brown, firm, soft, wet, no odor. | | | | |
| 24 25 55 35 | | 70 | |  | Sand and granule, some silt, little gravel, trace clay, pebble-sized clasts, dark yellowish-brown, loose, wet, no odor. | 0 | 0 | 25 | ND |
| 10 | | | |  | Silt, trace clay, trace to little gravel, granule sized clasts, dark yellowish-brown, firm, wet-moist, no odor. | | | | |
| | | | | | Boring Terminated at 10 ft. - Borehole Abandoned by Procedures Stated in Work Plan. | | | | |

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DULUTH, MINNESOTA, SITE 17

O P T E C H

OPERATIONAL TECHNOLOGIES
CORPORATION

LOG OF BORING 017-13BH

| | | | |
|------------------|-------------------------------------|--------------------|-------------------------------------|
| Project No.: | 1308-101 | Sampling Method: | Stainless-Steel Split-Spoon Sampler |
| Logged By: | Kathryn Pritchett | Depth Drilled: | 10.0 ft. |
| Drilling Co.: | Huntingdon Engineering and Environ. | Depth To Water: | 7.0 BLS |
| Driller: | Jim Saugestad/Steve Sterk | Date Measured: | 07/18/94 |
| Date Drilled: | 07/18/94 | Surface Elevation: | 1412.04 ft. |
| Drilling Method: | Hollow-Stem Auger | | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|----------------------|----------|------------|---------|---|--|-----------------|---------------|---------------|------------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) |
| 2 5 8 7 | | 90 | X |  | Silt, little sand, little gravel, cobble-sized clasts, dark yellowish-brown, moist-dry, roots. | - | - | ND | ND |
| 3 5 5 7 | | 80 | X |  | Peat, some silt, medium to dark grey brown, soft, firm, moist-dry, wood fragments, no odor. | - | - | ND | ND |
| 18 13 18 17 | | 60 | X |  | Silt, little to some sand, little gravel, cobble-sized clasts, dark yellowish-brown, firm, soft, wet, no odor. | - | - | ND | ND |
| 10 | | | X |  | Boring Terminated at 10 ft. - Borehole Abandoned by Procedures Stated in Work Plan. | | | | |

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CORPORATION

LOG OF BORING 017-14BH

| | | | |
|-------------------------|--|---------------------------|--|
| Project No.: | 1308-101 | Sampling Method: | Stainless-Steel Split-Spoon Sampler |
| Logged By: | Kathryn Pritchett | Depth Drilled: | 10.0 ft. |
| Drilling Co.: | Huntingdon Engineering and Environ. | Depth To Water: | 7.0 BLS |
| Driller: | Jim Saugestad/Steve Sterk | Date Measured: | 07/19/94 |
| Date Drilled: | 07/19/94 | Surface Elevation: | 1411.79 ft. |
| Drilling Method: | Hollow-Stem Auger | | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|--------------------|----------|------------|---|---|---|-----------------|---------------|---------------|------------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) |
| 3 7 27 37 | | 65 |  |  | Silt, trace to little clay, little gravel, cobble-sized clasts, dark yellowish to grey brown, loose, moist-dry. | 0 | 0 | 21 | ND |
| 2 3 4 6 | | 85 |  |  | Peat, little to some silt, trace clay, medium to dark grey brown, firm, soft, moist. | 0 | 0 | ND | ND |
| 5 6 5 13 | | 60 |  |  | Silt, trace clay, some gravel, little to some sand, cobble-sized clasts, dark yellowish-brown, firm, wet. | 0 | 0 | 22 | ND |
| 10 | | | | | Boring Terminated at 10 ft. - Borehole Abandoned by Procedures Stated in Work Plan. | | | | |

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DULUTH, MINNESOTA, SITE 17

O P T E C H

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LOG OF BORING 017-15BH

| | | | |
|------------------|-------------------------------------|--------------------|-------------------------------------|
| Project No.: | 1308-101 | Sampling Method: | Stainless-Steel Split-Spoon Sampler |
| Logged By: | Kathryn Pritchett | Depth Drilled: | 10.0 ft. |
| Drilling Co.: | Huntingdon Engineering and Environ. | Depth To Water: | 7.0 BLS |
| Driller: | Jim Saugestad/Steve Sterk | Date Measured: | 07/18/94 |
| Date Drilled: | 07/18/94 | Surface Elevation: | 1411.49 ft. |
| Drilling Method: | Hollow-Stem Auger | | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|---------------------|----------|------------|---------|---------|---|-----------------|---------------|---------------|------------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) |
| 2 10 60 24 | | 70 | | | Silt and sand, some gravel, cobble-sized clasts, dark yellowish to grey brown, loose, moist-dry, no odor. | 0 | 0 | ND | ND |
| 3 3 3 5 | | 45 | | | Peat, some silt, little clay, dark grey brown, firm, soft, moist, no odor. | 0 | 0 | ND | ND |
| 10 17 11 6 | | 35 | | | Silt, some sand, some gravel, cobble-sized clasts, dark yellowish-brown, firm, soft, wet, no odor. | 0 | - | ND | ND |
| 10 | | | | | Boring Terminated at 10 ft. - Borehole Abandoned by Procedures Stated in Work Plan. | | | | |

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











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O P T E C H

OPERATIONAL TECHNOLOGIES
CORPORATION

LOG OF BORING 017-16BH

| | | | |
|------------------|-------------------------------------|--------------------|-------------------------------------|
| Project No.: | 1308-101 | Sampling Method: | Stainless-Steel Split-Spoon Sampler |
| Logged By: | Kathryn Pritchett | Depth Drilled: | 10.0 ft. |
| Drilling Co.: | Huntingdon Engineering and Environ. | Depth To Water: | 7.0 BLS |
| Driller: | Jim Saugestad/Steve Sterk | Date Measured: | 07/18/94 |
| Date Drilled: | 07/18/94 | Surface Elevation: | 1411.63 ft. |
| Drilling Method: | Hollow-Stem Auger | | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|---------------------|----------|------------|---------|---|--|-----------------|---------------|---------------|------------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) |
| 2 20 26 26 | | 75 | X |  | Silt, little clay, trace to little gravel, pebble-sized clasts, medium to dark yellowish-brown, firm, moist-dry, roots, no odor. | 0 | 0 | ND | ND |
| | | | X |  | Silt and peat, little sand, medium to dark grey-brown, loose, moist-dry. | | | | |
| | | | X |  | Sand and silt, some granule, medium to dark grey-brown, loose, moist-dry, coal fragments. | | | | |
| 2 2 3 5 | | 80 | X |  | Peat, some silt, dark grey-brown, firm, soft, moist, wood fragments. | 0 | - | ND | ND |
| | | | X |  | | | | | |
| | | | X |  | | | | | |
| | | | X |  | | | | | |
| | | | X |  | | | | | |
| 2 4 9 15 | | 75 | X |  | Sand and silt, little to some granule, medium grey-brown, firm, soft, wet, no odor. | 0 | 0 | ND | ND |
| | | | X |  | | | | | |
| | | | X |  | | | | | |
| 10 | | | X |  | | | | | |
| | | | | | Boring Terminated at 10 ft. - Borehole Abandoned by Procedures Stated in Work Plan. | | | | |

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DULUTH, MINNESOTA, SITE 17

O P T E C H

OPERATIONAL TECHNOLOGIES
CORPORATION

LOG OF BORING 017-17BH

| | | | |
|------------------|-------------------------------------|--------------------|-------------------------------------|
| Project No.: | 1308-101 | Sampling Method: | Stainless-Steel Split-Spoon Sampler |
| Logged By: | Kathryn Pritchett | Depth Drilled: | 10.0 ft. |
| Drilling Co.: | Huntingdon Engineering and Environ. | Depth To Water: | 7.0 BLS |
| Driller: | Jim Saugestad/Steve Sterk | Date Measured: | 07/19/94 |
| Date Drilled: | 07/19/94 | Surface Elevation: | 1412.27 ft. |
| Drilling Method: | Hollow-Stem Auger | | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|---------------------|----------|------------|---------|---------|---|-----------------|---------------|---------------|------------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) |
| 6 14 14 10 | | 75 | | | Silt, trace clay, little gravel, cobble-sized clasts, dark yellowish-brown, firm, moist-dry. | 0 | 0.6 | ND | ND |
| | | | | | Silt, little to some granule, little coal fragments, trace clay, dark yellowish-brown, firm, moist-dry. | | | | |
| 2 4 5 6 | | 100 | | | Peat, little silt, trace clay, medium to dark grey brown, firm, soft, moist, wood fragments. | 0 | 1.0 | ND | ND |
| 1 2 2 3 | | 100 | | | Peat and silt, trace clay, trace gravel, pebble-sized clasts, light to dark grey to olive brown, soft, firm, wet. | 0 | 0.8 | 19 | ND |
| 10 | | | | | Boring Terminated at 10 ft. - Borehole Abandoned by Procedures Stated in Work Plan. | | | | |

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











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OPERATIONAL TECHNOLOGIES
CORPORATION

LOG OF BORING 017-18BH

| | |
|--|---|
| Project No.: 1308-101 | Sampling Method: Stainless-Steel Split-Spoon Sampler |
| Logged By: Kathryn Pritchett | Depth Drilled: 10.0 ft. |
| Drilling Co.: Huntingdon Engineering and Environ. | Depth To Water: 1.0 BLS |
| Driller: Jim Saugestad/Steve Sterk | Date Measured: 07/20/94 |
| Date Drilled: 07/20/94 | Surface Elevation: 1412.95 ft. |
| Drilling Method: Hollow-Stem Auger | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|---------------------|----------|------------|---|---|--|-----------------|---------------|---------------|------------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) |
| 6 12 32 12 | | 70 |  |  | Silt, trace clay, some sand, dark yellowish-brown, loose, moist-dry, roots. | 0 | 1.0 | ND | ND |
| | | |  |  | Silt, trace clay, little to some sand, some gravel, cobble-sized clasts, dark yellowish-brown, firm, wet. | | | | |
| 2 3 5 7 | | 90 |  |  | Peat, little to some silt, trace to little clay, medium to dark grey brown, soft, moist-wet, wood fragments. | 0 | 0.9 | ND | ND |
| | | |  |  | Peat, little to some silt, trace to little clay, medium to dark grey brown, soft, moist-wet, wood fragments. | | | | |
| 2 3 6 10 | | 75 |  |  | Silt and peat, little clay, trace granule, medium grey to olive brown, soft, wet. | 0 | 0.8 | ND | ND |
| | | |  |  | Silt, trace clay, trace to little sand, little to some gravel, pebble-sized clasts, dark yellowish-brown, firm, wet. | | | | |
| 10 | | | | | Boring Terminated at 10 ft. - Borehole Abandoned by Procedure Stated in Work Plan. | | | | |

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DULUTH, MINNESOTA, SITE 17

O P T E C H

OPERATIONAL TECHNOLOGIES
CORPORATION

LOG OF BORING 017-19BH

| | |
|--|---|
| Project No.: 1308-101 | Sampling Method: Stainless-Steel Split-Spoon Sampler |
| Logged By: Kathryn Pritchett | Depth Drilled: 10.0 ft. |
| Drilling Co.: Huntingdon Engineering and Environ. | Depth To Water: 1.0 BLS |
| Driller: Jim Saugestad/Steve Sterk | Date Measured: 07/20/94 |
| Date Drilled: 07/20/94 | Surface Elevation: 1413.05 ft. |
| Drilling Method: Hollow-Stem Auger | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|---------------------|----------|------------|---------|---------|--|-----------------|---------------|---------------|------------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) |
| 3 3 5 8 | | 50 | | | Silt, trace clay, trace sand, trace gravel, pebble-sized clasts, medium to dark yellowish to reddish-brown, loose, moist-dry, roots. Silt, some sand, little gravel, little granule, trace clay, pebble-sized clasts, dark yellowish to grey brown, soft, wet, slight petroleum odor. | 25.1 | 0 | ND | ND |
| 2 3 7 10 | | | | | Silt, little to some sand, little gravel, little granule, pebble-sized clasts, trace clay, dark yellowish to grey brown, soft, wet, slight petroleum odor. Silt, trace clay, trace to little gravel, cobble-sized clasts, dark yellowish-brown, firm, wet, no odor. | 0 | 0 | ND | ND |
| 8 44 42 47 | | | | | Silt, trace clay, little gravel, pebble-sized clasts, dark yellowish-brown, firm, wet. | 0 | 0 | ND | ND |
| 10 | | | | | Boring Terminated at 10 ft. - Borehole Abandoned by Procedures Stated in Work Plan. - Diesel Fuel Apparent in Drill Cuttings. | | | | |

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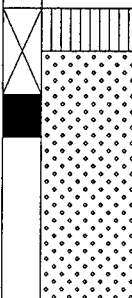
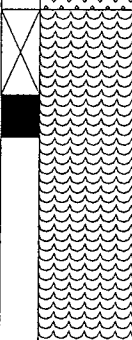
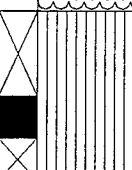
DULUTH, MINNESOTA, SITE 17

O P T E C H

OPERATIONAL TECHNOLOGIES
CORPORATION

LOG OF BORING 017-20BH

| | |
|--|---|
| Project No.: 1308-101 | Sampling Method: Stainless-Steel Split-Spoon Sampler |
| Logged By: Kathryn Pritchett | Depth Drilled: 10.0 ft. |
| Drilling Co.: Huntingdon Engineering and Environ. | Depth To Water: 2.0 BLS |
| Driller: Jim Saugestad/Steve Sterk | Date Measured: 07/20/94 |
| Date Drilled: 07/20/94 | Surface Elevation: 1412.90 ft. |
| Drilling Method: Hollow-Stem Auger | |



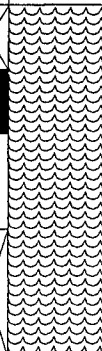

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|---------------------|----------|------------|---------|---|--|-----------------|---------------|---------------|------------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) |
| 3 7 5 9 | | 75 | X |  | Silt, trace clay, little to some sand, little gravel, pebble-sized clasts, dark yellowish-brown, loose, moist-dry, no odor, roots. Sand and granule, some silt, trace gravel, pebble-sized clasts, dark yellowish to grey brown, loose, moist, wet. | 0 | 0 | ND | ND |
| 3 2 2 2 | | 75 | X |  | Peat, some silt, trace to little clay, medium to dark grey brown, firm, soft, wet. | 0 | 0 | ND | ND |
| 5 12 19 27 | | 70 | X |  | Silt, trace clay, little gravel, trace sand, cobble-sized clasts, dark yellowish-brown, firm, wet. | 0 | 0 | ND | ND |
| 10 | | | | | Boring Terminated at 10 ft. - Borehole Abandoned by Procedures Stated in Work Plan. | | | | |

DULUTH, MINNESOTA, SITE 17

**OPERATIONAL TECHNOLOGIES
CORPORATION**

| | |
|-------------------------|-------------------------------------|
| Project No.: | 1308-101 |
| Logged By: | Kathleen Merino |
| Drilling Co.: | American Engineering Testing |
| Driller: | J. Tuura |
| Date Drilled: | 05/17/95 |
| Drilling Method: | Hollow Stem Auger |

| | |
|---------------------------|----------------------------|
| Sampling Method: | Split-Spoon Sampler |
| Depth Drilled: | 6.0 ft. |
| Depth To Water: | 3.0 ft. BLS |
| Date Measured: | 05/17/95 |
| Surface Elevation: | 1412.26 ft. |


| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|-------------------|----------|--|---|--|------------------------------|-----------------|---------------|---|---|
| | | | | | | PID (ppm) | ATHA (ppm) | - | - |
| 11 9 8 3 | 50 |  |  |  | Peat, soft, moist. | 0.0 | 0.0 | | |
| | | | | | Peat, soft, moist. | 0.0 | - | | |
| 3 1 2 3 | 5 |  | | | Boring Terminated at 6.0 ft. | | | | |

DULUTH, MINNESOTA, SITE 17

OPERATIONAL TECHNOLOGIES CORPORATION

LOG OF BORING 017-23BH

| | |
|---------------------------|----------------------------|
| Sampling Method: | Split-Spoon Sampler |
| Depth Drilled: | 6.0 ft.BLS |
| Depth To Water: | 3.0 ft.BLS |
| Date Measured: | NA |
| Surface Elevation: | 1412.97 ft. |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|------------------------------|----------|------------|---------|--|---|-----------------|---------------|---|---|
| | | | | | | PID (ppm) | ATHA (ppm) | - | - |
| 6 | 6 | | X |  | Silt, little sand (medium to coarse), trace gravel (pebble), dry dark brown (7.5 yr 4/4). | 0.0 | 0.0 | | |
| 2 | 2 | | | | | | | | |
| 5 | 2 | | X | | Silt, trace clay, trace gravel (pebble), moist, dark brown (7.5 yr 4/4). | 0.0 | 0.0 | | |
| 3 | 3 | | | | | | | | |
| Boring Terminated at 6.0 ft. | | | | | | | | | |

DULUTH, MINNESOTA, SITE 17

OPERATIONAL TECHNOLOGIES CORPORATION

| | | | |
|-------------------------|-------------------------------------|---------------------------|----------------------------|
| Project No.: | 1308-101 | Sampling Method: | Split-Spoon Sampler |
| Logged By: | Kathleen Merino | Depth Drilled: | 10.0 ft. |
| Drilling Co.: | American Engineering Testing | Depth To Water: | 3.0 ft.BLS |
| Driller: | J. Tuura | Date Measured: | NA |
| Date Drilled: | 05/17/95 | Surface Elevation: | 1411.22 ft. |
| Drilling Method: | Hollow Stem Auger | | |

[illegible]

DULUTH, MINNESOTA, SITE 17

**OPERATIONAL TECHNOLOGIES
CORPORATION**

| | | | |
|-------------------------|-------------------------------------|---------------------------|--------------------------|
| Project No.: | 1308-101 | Sampling Method: | Split-Spoon Auger |
| Logged By: | Kathleen Merino | Depth Drilled: | 6.0 ft. |
| Drilling Co.: | American Engineering Testing | Depth To Water: | 3.0 ft.BLS |
| Driller: | J. Tuura | Date Measured: | 05/17/95 |
| Date Drilled: | 05/17/95 | Surface Elevation: | 1411.56 ft. |
| Drilling Method: | Hollow Stem Auger | | |

[illegible]

DULUTH, MINNESOTA, SITE 17

**OPERATIONAL TECHNOLOGIES
CORPORATION**

| | |
|-------------------------|-------------------------------------|
| Project No.: | 1308-101 |
| Logged By: | Kathleen Merino |
| Drilling Co.: | American Engineering Testing |
| Driller: | J. Tuura |
| Date Drilled: | 05/17/95 |
| Drilling Method: | Hollow Stem Auger |

| | |
|---------------------------|----------------------------|
| Sampling Method: | Split-Spoon Sampler |
| Depth Drilled: | 6.0 ft. |
| Depth To Water: | 3.0 ft.BLS |
| Date Measured: | NA |
| Surface Elevation: | 1412.66 ft. |

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DULUTH, MINNESOTA, SITE 17

**OPERATIONAL TECHNOLOGIES
CORPORATION**

| | | | |
|-------------------------|-------------------------------------|---------------------------|----------------------------|
| Project No.: | 1308-101 | Sampling Method: | Split-Spoon Sampler |
| Logged By: | Kathleen Merino | Depth Drilled: | 2.5 ft. |
| Drilling Co.: | American Engineering Testing | Depth To Water: | 3.0 ft.BLS |
| Driller: | J. Tuura | Date Measured: | NA |
| Date Drilled: | 05/19/95 | Surface Elevation: | 1412.15 ft. |
| Drilling Method: | Hollow Stem Auger | | |

[illegible]

O P T E C H
OPERATIONAL TECHNOLOGIES
CORPORATION

| | | | |
|-------------------------|-------------------------------------|---------------------------|----------------------------|
| Project No.: | 1308-101 | Sampling Method: | Split-Spoon Sampler |
| Logged By: | Kathleen Merino | Depth Drilled: | 6.0 ft. |
| Drilling Co.: | American Engineering Testing | Depth To Water: | 3.0 ft.BLS |
| Driller: | J. Tuura | Date Measured: | NA |
| Date Drilled: | 05/19/95 | Surface Elevation: | 1411.31 ft. |
| Drilling Method: | Hollow Stem Auger | | |

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DULUTH, MINNESOTA, SITE 17

**OPERATIONAL TECHNOLOGIES
CORPORATION**

| | | | |
|-------------------------|-------------------------------------|---------------------------|----------------------------|
| Project No.: | 1308-101 | Sampling Method: | Split-Spoon Sampler |
| Logged By: | Kathleen Merino | Depth Drilled: | 2.5 ft. |
| Drilling Co.: | American Engineering Testing | Depth To Water: | 2.0 ft.BLS |
| Driller: | J. Tuura | Date Measured: | 05/19/95 |
| Date Drilled: | 05/19/95 | Surface Elevation: | 1412.37 ft. |
| Drilling Method: | Hollow Stem Auger | | |

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DULUTH RFI





DULUTH, MINNESOTA, SITE 18

O P T E C H

OPERATIONAL TECHNOLOGIES
CORPORATION

LOG OF BORING 018-06BH

| | | | |
|------------------|--------------------------|--------------------|----------------------------|
| Project No.: | 1308-101 | Sampling Method: | Stainless-Steel Hand Auger |
| Logged By: | Kathryn Pritchett | Depth Drilled: | 2.5 ft. BLS |
| Drilling Co.: | Operational Technologies | Depth To Water: | NA |
| Driller: | Jeff Blunt | Date Measured: | NA |
| Date Drilled: | 10/05/94 | Surface Elevation: | 1412.72 ft. |
| Drilling Method: | Hand Auger | | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|-------------|----------|------------|---|---|--|-----------------|---------------|---------------|------------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) |
| | | 100 |  |  | Silt, little clay, trace gravel, trace sand, fine-grained sand, cobble-sized clasts, dark brown (10yr 3/3), moist. | 3.0 | - | ND | ND |
| | | 100 |  |  | | 3.0 | - | ND | ND |
| 5 | | | | | Boring Terminated at 2.5 ft. | | | | |

LOG OF BORING 018-07BH

| | | | |
|------------------|--------------------------|--------------------|----------------------------|
| Project No.: | 1308-101 | Sampling Method: | Stainless-Steel Hand Auger |
| Logged By: | Kathryn Pritchett | Depth Drilled: | 2.5 ft. BLS |
| Drilling Co.: | Operational Technologies | Depth To Water: | NA |
| Driller: | Jeff Blunt | Date Measured: | NA |
| Date Drilled: | 10/05/94 | Surface Elevation: | 1412.78 ft. |
| Drilling Method: | Hand Auger | | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|-------------|----------|------------|---------|---------|---|-----------------|---------------|---------------|------------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) |
| | | 100 | X | | Silt, little sand, little to trace clay, trace gravel, fine-grained sand, cobble-sized clasts, dark brown (10 yr 3/3), moist, roots, slight petroleum odor. | 14.0 | - | - | - |
| | | 100 | X | | | 55.0 | - | 1,900 | ND |
| | | 100 | X | | | 8.0 | - | 2,428 | 24 |
| | | 100 | X | | | | | | |
| | | | | | Boring Terminated at 2.5 ft. | | | | |

DULUTH RFI

DULUTH, MINNESOTA, SITE 21

O P T E C H

OPERATIONAL TECHNOLOGIES
CORPORATION

LOG OF BORING 021-15BH

| | | | |
|------------------|-------------------------------------|--------------------|-------------------------------------|
| Project No.: | 1308-101 | Sampling Method: | Stainless-Steel Split-Spoon Sampler |
| Logged By: | Kathryn Pritchett | Depth Drilled: | 14.0 ft. |
| Drilling Co.: | Huntingdon Engineering and Environ. | Depth To Water: | 5.0 BLS |
| Driller: | Jim Saugestad/Steve Sterk | Date Measured: | 07/14/94 |
| Date Drilled: | 07/14/94 | Surface Elevation: | 1406.34 ft. |
| Drilling Method: | Hollow-Stem Auger | | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|--|----------|------------|---------|---------|--|-----------------|---------------|---------------|------------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) |
| 16 20 11 11 | | 70 | X | | Silt and sand, some gravel, mostly granule-sized clasts, pebble-sized clasts, dark yellowish-brown, loose, moist-dry, no odor. | 0 | 0 | ND | ND |
| 5 3 8 12 16 | | 80 | X | | Silt, trace clay, trace gravel granule-sized clasts, medium reddish to yellowish-brown, firm, soft, wet, no odor. | 1.0 | 1.0 | ND | ND |
| 10 50 62 76 59 | | 75 | X | | Silt, trace clay, some gravel, cobble-sized clasts, medium reddish to yellowish-brown, very firm, wet, no odor. | 0.9 | 0 | ND | ND |
| 15 10 226 | | 100 | X | | Silt, trace clay, some gravel, cobble-sized clasts, medium reddish to yellowish-brown, very firm, wet, no odor | 0.6 | 0.5 | ND | ND |
| Boring Terminated at 14 ft. - Refusal at 14 ft. BLS. - Borehole Abandoned by Procedures Stated in Work Plan. | | | | | | | | | |

DULUTH RFI




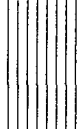




DULUTH, MINNESOTA, SITE 21

O P T E C H

OPERATIONAL TECHNOLOGIES
CORPORATION

LOG OF BORING 021-16BH

| | |
|--|---|
| Project No.: 1308-101 | Sampling Method: Stainless-Steel Split-Spoon Sampler |
| Logged By: Kathryn Pritchett | Depth Drilled: 15.0 ft. |
| Drilling Co.: Huntingdon Engineering and Environ. | Depth To Water: 8.0 BLS |
| Driller: Jim Saugestad/Steve Sterk | Date Measured: 07/14/94 |
| Date Drilled: 07/14/94 | Surface Elevation: 1401.14 ft. |
| Drilling Method: Hollow-Stem Auger | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|---------------------------|----------|------------|---|---|---|-----------------|---------------|---------------|------------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) |
| 15 23 23 13 | | 50 |  |  | Silt, some sand, little gravel, pebble-sized gravel, dark yellowish-brown, loose, moist-dry, no odor. Silt, trace to little sand, trace clay, little gravel, pebble-sized clasts, dark yellowish-brown, firm, moist-dry. | 1.2 | 0.2 | ND | ND |
| 5 7 5 5 10 | | 80 |  |  | Silt, trace clay, trace sand, little gravel, pebble-sized clasts, decrease abundance of sand downward in section, dark yellowish-brown to medium yellowish, reddish-brown, firm, moist-dry. | 1.1 | 1.5 | ND | ND |
| 10 7 16 22 23 | | 70 |  |  | Silt, trace clay, little to some gravel, cobble-sized clasts, medium to dark yellowish-brown, firm, wet. | 1.5 | 0.9 | ND | ND |
| 10 17 20 27 | | 55 |  |  | Silt, trace clay, little to some gravel, cobble-sized clasts, medium to dark yellowish-brown, firm, wet | 0.9 | - | - | - |
| 15 | | | | | Boring Terminated at 15 ft. - Borehole Abandoned by Procedures Stated in Work Plan. | | | | |

DULUTH RFI

DULUTH, MINNESOTA, SITE 21

O P T E C H

OPERATIONAL TECHNOLOGIES
CORPORATION

LOG OF BORING 021-17BH

| | | | |
|------------------|-------------------------------------|--------------------|-------------------------------------|
| Project No.: | 1308-101 | Sampling Method: | Stainless-Steel Split-Spoon Sampler |
| Logged By: | Kathryn Pritchett | Depth Drilled: | 15.0 ft. |
| Drilling Co.: | Huntingdon Engineering and Environ. | Depth To Water: | 8.0 BLS |
| Driller: | Jim Saugestad/Steve Sterk | Date Measured: | 07/15/94 |
| Date Drilled: | 07/15/94 | Surface Elevation: | 1396.09 ft. |
| Drilling Method: | Hollow-Stem Auger | | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|----------------------------|----------|------------|---------|---------|--|-----------------|---------------|---------------|------------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) |
| 6 22 20 9 | | 50 | X | | Silt, trace clay, trace gravel, dark yellowish-brown, loose, moist-dry. | 0 | 0 | ND | ND |
| 5 6 18 22 37 | | 80 | X | | Silt, little to some gravel, trace clay, cobble-sized clasts, medium reddish to yellowish-brown, firm, moist-dry, no odor. | 0 | 0 | ND | ND |
| 10 12 20 26 35 | | 95 | X | | Silt, little to some sand, little gravel, granule-sized clasts, medium reddish to yellowish-brown, firm, wet, no odor. | 0 | 0.4 | ND | ND |
| | | | X | | Silt, little to some gravel, trace clay, cobble-sized clasts, medium reddish to yellowish-brown, firm, moist-dry, no odor. | | | | |
| 14 21 20 23 | | 85 | X | | Silt, little to some sand, little gravel, granule-sized clasts, medium reddish to yellowish-brown, firm, wet, no odor | 0.1 | 0.8 | ND | ND |
| 15 | | | X | | Sand and granule, trace gravel, pebble-sized clasts, dark yellowish to grey brown, loose, wet, no odor. | | | | |
| | | | | | Silt, trace clay, little gravel, granule-sized clasts, medium reddish to yellowish-brown, firm, wet. | | | | |
| | | | | | Boring Terminated at 15 ft. - Borehole Abandoned by Procedures Stated in Work Plan. | | | | |

DULUTH RFI

DULUTH, MINNESOTA, SITE 21

O P T E C H

OPERATIONAL TECHNOLOGIES
CORPORATION

LOG OF BORING 021-18BH

| | | | |
|------------------|-------------------------------------|--------------------|-------------------------------------|
| Project No.: | 1308-101 | Sampling Method: | Stainless-Steel Split-Spoon Sampler |
| Logged By: | Kathryn Pritchett | Depth Drilled: | 15.0 ft. |
| Drilling Co.: | Huntingdon Engineering and Environ. | Depth To Water: | 5.0 BLS |
| Driller: | Jim Saugestad/Steve Sterk | Date Measured: | 07/14/94 |
| Date Drilled: | 07/14/94 | Surface Elevation: | 1394.27 ft. |
| Drilling Method: | Hollow-Stem Auger | | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|--|----------|------------|---------|---------|--|-----------------|---------------|---------------|------------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) |
| 30 50 40 40 | | 80 | X | | Sand and silt, little gravel, mostly granule-sized clasts, pebble-sized clasts, dark yellowish-brown, loose, soft, moist-dry, no odor. | 1.5 | 3.1 | ND | ND |
| | | | X | | Silt, some sand, some gravel, cobble-sized clasts, dark yellowish-brown, firm, moist-dry, no odor. | | | | |
| 5 7 6 5 7 | | 20 | X | | Poor Recovery | 1.3 | 2.0 | - | - |
| 7 12 30 19 | | 60 | X | | Silt, little to some gravel, trace to little clay, cobble-sized clasts, dark yellowish-brown, firm, wet, no odor. | 1.4 | - | ND | ND |
| 13 20 23 21 | | 85 | X | | Silt and sand, little to some gravel, trace clay, cobble-sized clasts, dark yellowish-brown, soft, wet. | 1.3 | - | ND | ND |
| 15 | | | X | | Silt, little sand, trace clay, little to some gravel, cobble-sized clasts, dark yellowish-brown, firm, wet, no odor. | | | | |
| Boring Terminated at 15 ft. - Borehole Abandoned by Procedures Stated in Work Plan. | | | | | | | | | |

DULUTH RFI

DULUTH, MINNESOTA, SITE 17

O P T E C H

OPERATIONAL TECHNOLOGIES
CORPORATION

LOG OF BORING 021-19BH

| | | | |
|------------------|-------------------------------------|--------------------|-------------------------------------|
| Project No.: | 1308-101 | Sampling Method: | Stainless-Steel Split-Spoon Sampler |
| Logged By: | Kathryn Pritchett | Depth Drilled: | 15.0 ft. |
| Drilling Co.: | Huntingdon Engineering and Environ. | Depth To Water: | 4.0 BLS |
| Driller: | Jim Saugestad/Steve Sterk | Date Measured: | 07/14/94 |
| Date Drilled: | 07/14/94 | Surface Elevation: | 1394.20 ft. |
| Drilling Method: | Hollow-Stem Auger | | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|--|----------|------------|---------|---------|---|-----------------|---------------|---------------|------------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) |
| 11 66 38 | | 50 | | | Sand and silt, little gravel, pebble to cobble-sized clasts, medium reddish to grey brown to dark yellowish-brown, loose, moist-dry, no odor. | 1.6 | 1.4 | ND | ND |
| 5 4 7 6 9 | | 75 | | | Sand and silt, little gravel, pebble to cobble-sized clasts, dark yellowish-brown, wet, no odor. | 1.7 | 1.6 | ND | ND |
| | | | | | Peat and silt, little gravel, trace to little clay, cobble-sized clasts, medium to dark grey brown, firm, wet, no odor. | | | | |
| 10 13 23 30 36 | | 100 | | | Sand and silt, little gravel, pebble to cobble-sized clasts, medium reddish to grey brown to dark yellowish-brown, loose, moist-dry, no odor. | 1.8 | - | ND | ND |
| | | | | | Silt and clay, medium grey, soft, wet. | | | | |
| | | | | | Sand and granule, some gravels, some silt, cobble-sized clasts, soft, wet, slight petroleum odor. | | | | |
| 15 22 18 20 25 | | 100 | | | Sand and silt, some granule, medium to dark yellowish-brown, soft, loose, wet. | 1.6 | 3.9 | 7 | 7 |
| | | | | | Sand and granule, some silt, medium to dark yellowish-brown, firm, soft, wet, slight petroleum odor. | | | | |
| Boring Terminated at 15 ft. - Borehole Abandoned by Procedures Stated in Work Plan. | | | | | | | | | |

DULUTH RFI









DULUTH, MINNESOTA, SITE 21

O P T E C H

OPERATIONAL TECHNOLOGIES
CORPORATION

LOG OF BORING 021-20BH

| | | | |
|------------------|-------------------------------------|--------------------|-------------------------------------|
| Project No.: | 1308-101 | Sampling Method: | Stainless-Steel Split-Spoon Sampler |
| Logged By: | Kathryn Pritchett | Depth Drilled: | 15.0 ft. |
| Drilling Co.: | Huntingdon Engineering and Environ. | Depth To Water: | 1.0 BLS |
| Driller: | Jim Saugestad/Steve Sterk | Date Measured: | 07/13/94 |
| Date Drilled: | 07/13/94 | Surface Elevation: | 1395.63 ft. |
| Drilling Method: | Hollow-Stem Auger | | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | | |
|--|----------|------------|---|---|---|--|---------------|---------------|------------------|-----|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) | |
| 5 | 3 | 60 |  |  | Silt, trace clay, trace gravel, pebble-sized clasts, medium reddish to yellowish-brown, soft, moist-wet, no odor. Silt, some sand, trace to little gravel, pebble-sized clasts, medium reddish to yellowish-brown, firm, soft, wet, sand and granule lenses (1-2 inches thick), no odor. | 1.7 | 5.3 | ND | ND | |
| | 4 | | | | | | | | | |
| | 5 | | | | | | | | | |
| | 8 | | | | | | | | | |
| | 10 | 3 | 75 |  |  | Silt and sand, little organics (roots and wood fragments), medium reddish to yellowish-brown, soft, wet. Peat, trace silt, trace clay, medium to dark grey brown, loose, wet, wood fragments. | 1.8 | 7.0 | 100 | 100 |
| | | 5 | | | | | | | | |
| | | 3 | | | | | | | | |
| | | 3 | | | | | | | | |
| | 15 | 12 | 80 |  |  | Silt, trace gravel, trace to little sand, trace clay, granule to pebble-sized clasts, firm, wet, no odor, sand and granule lenses. | 1.8 | 7.0 | ND | ND |
| | | 20 | | | | | | | | |
| 24 | | | | | | | | | | |
| 32 | | | | | | | | | | |
| 15 | 10 | 55 |  |  | Silt, little to some sand, trace to little gravel, trace clay, granule to pebble-sized clasts, medium reddish to yellowish-brown, soft, firm, wet. | 1.5 | - | - | - | |
| | 18 | | | | | | | | | |
| | 14 | | | | | | | | | |
| | 17 | | | | | | | | | |
| Boring Terminated at 15 ft. - Boring Abandoned by Procedures Stated in Work Plan. | | | | | | | | | | |













DULUTH RFI

DULUTH, MINNESOTA, SITE 21

O P T E C HOPERATIONAL TECHNOLOGIES
CORPORATION

LOG OF BORING 021-21BH

| | | | |
|-------------------------|--|---------------------------|--|
| Project No.: | 1308-101 | Sampling Method: | Stainless-Steel Split-Spoon Sampler |
| Logged By: | Kathryn Pritchett | Depth Drilled: | 15.0 ft. |
| Drilling Co.: | Huntingdon Engineering and Environ. | Depth To Water: | 4.0 BLS |
| Driller: | Jim Saugestad/Steve Sterk | Date Measured: | 07/13/94 |
| Date Drilled: | 07/13/94 | Surface Elevation: | 1417.27 ft. |
| Drilling Method: | Hollow-Stem Auger | | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|----------------------------|----------|------------|--|--|---|-----------------|---------------|---------------|------------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) |
| 4 6 8 9 | | 75 |  |  | Silt, trace clay, trace gravel, granule to pebble-sized clasts, medium reddish to yellowish-brown, loose, dry, roots, no odor. | 1.7 | 3.6 | ND | ND |
| 5 3 6 11 12 | | 70 |  |  | Silt, trace to little clay, trace to little gravel, granule to cobble-sized clasts, medium reddish to yellowish-brown, firm, wet, no odor. | 1.9 | 5.9 | ND | ND |
| 10 12 22 22 24 | | 80 |   |   | Silt, trace to little clay, trace to little gravel, granule to cobble-sized clasts, medium reddish to yellowish-brown, firm, wet, no odor. Sand and granule, some silt, trace gravel, pebble-sized clasts, medium reddish to yellowish-brown, loose, soft, wet, no odor. | 6.1 | 5.7 | 89 | 79 |
| 15 21 37 44 | | 85 |   |   | Sand and silt, trace gravel pebble-sized clasts, medium reddish to yellowish-brown, firm, wet, no odor. Silt, trace clay, trace to little gravel, medium reddish to yellowish-brown, firm, wet. | 63.3 | 14.4 | 164 | 105 |
| 15 | | | | | Boring Terminated at 15 ft. - Borehole Abandoned by Procedures Stated in Work Plan. | | | | |

DULUTH RFI



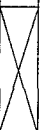



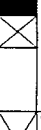


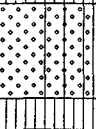

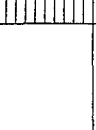
DULUTH, MINNESOTA, SITE 21

O P T E C H

OPERATIONAL TECHNOLOGIES
CORPORATION

LOG OF BORING 021-22BH

| | | | |
|------------------|-------------------------------------|--------------------|-------------------------------------|
| Project No.: | 1308-101 | Sampling Method: | Stainless-Steel Split-Spoon Sampler |
| Logged By: | Kathryn Pritchett | Depth Drilled: | 15.0 ft. |
| Drilling Co.: | Huntingdon Engineering and Environ. | Depth To Water: | 6.0 BLS |
| Driller: | Jim Saugestad/Steve Sterk | Date Measured: | 07/12/94 |
| Date Drilled: | 07/12/94 | Surface Elevation: | 1417.47 ft. |
| Drilling Method: | Hollow-Stem Auger | | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|----------------------------|----------|------------|---|---|---|-----------------|---------------|---------------|------------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) |
| 5 7 7 7 | | 60 |  |  | Silt, trace to little clay, little gravel, granule to cobble-sized clasts, dark reddish to yellowish-brown, loose, moist-dry, roots, rotten gabbro clasts, no odor. | 0 | 10.3 | ND | ND |
| 5 3 6 10 25 | | 55 |  |  | Silt, trace clay, trace to little gravel, granule to pebble-sized clasts, gravel increases in abundance downward in section, medium to dark yellowish-brown, soft to loose, firm at lower interval, moist to wet. | 21.3 | 472.0 | 902 | 395 |
| 10 12 60 45 41 | | 75 |  |  | Silt, trace clay, little to some gravel, granule to cobble-sized clasts, dark yellowish-brown, firm, wet, no odor. | - | - | 163 | 142 |
| 10 33 27 30 | | 80 |  |  | Silt, little to some sand, increases in abundance downward in section, little gravel, granule to pebble-sized clasts, dark yellowish-brown, wet, moist, no odor. | 51.1 | 117.1 | 264 | 240 |
| 15 10 33 27 30 | | |  |  | Silt and sand, fine-grained sand, trace clay, little to some gravel, increases in abundance downward in section, dark yellowish-brown, moist-dry. | | | | |
| | | |  |  | Silt, some sand, some gravel, granule to cobble-sized clasts, dark yellowish-brown, dry. | | | | |
| | | | | | Boring Terminated at 15 ft. - Perched Water From 6.0 ft. To 11.5 ft. BLS. | | | | |

DULUTH RFI

DULUTH, MINNESOTA, SITE 21

O P T E C H

OPERATIONAL TECHNOLOGIES
CORPORATION

LOG OF BORING 021-23BH

| | | | |
|------------------|-------------------------------------|--------------------|-------------------------------------|
| Project No.: | 1308-101 | Sampling Method: | Stainless-Steel Split-Spoon Sampler |
| Logged By: | Kathryn Pritchett | Depth Drilled: | 15.0 ft. |
| Drilling Co.: | Huntingdon Engineering and Environ. | Depth To Water: | NA |
| Driller: | Jim Saugestad/Steve Sterk | Date Measured: | NA |
| Date Drilled: | 07/12/94 | Surface Elevation: | 1417.36 ft. |
| Drilling Method: | Hollow-Stem Auger | | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|----------------------------|----------|------------|------------------|---------|--|-----------------|---------------|---------------|------------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) |
| 7 9 9 8 | | 70 | X X X X | | Silt, trace to little clay, little to some gravel, granule to cobble-sized clasts, soft, loose, dry-moist, no odor. | 1.8 | 18.2 | 73 | 73 |
| 5 | | | | | | | | | |
| 10 22 24 27 17 | | 95 | X X X X | | Silt, trace to little clay, little to some gravel, granule to cobble-sized clasts, firm, dry, wet (11.0 - 11.5 perched). | 47.3 | 366.0 | 1,289 | 1,110 |
| 9 12 11 18 | | 80 | X X X X | | Silt and sand, medium to dark yellowish-brown, loose, dry, at 14.5 BLS to 2 inch lense, silt with little clay, roots and gravel. | 107.0 | 318.0 | 103 | 103 |
| 15 | | | | | Boring Terminated at 15 ft. - Perched water at 11.0-11.5 ft. - Borehole Abandoned by Procedures Stated in Work Plan. | | | | |

LOG OF BORING 021-24BH

| | | | |
|-------------------------|--|---------------------------|--|
| Project No.: | 1308-101 | Sampling Method: | Stainless-Steel Split-Spoon Sampler |
| Logged By: | Kathryn Pritchett | Depth Drilled: | 17.0 ft. |
| Drilling Co.: | Huntingdon Engineering and Environ. | Depth To Water: | 10.0 ft. BLS |
| Driller: | Jim Saugestad/Steve Sterk | Date Measured: | 07/13/94 |
| Date Drilled: | 07/13/94 | Surface Elevation: | 1403.73 ft. |
| Drilling Method: | Hollow-Stem Auger | | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|-------------|----------|------------|---------|---------|---|-----------------|---------------|---------------|------------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) |
| 8 | | 70 | | | Silt, trace clay, trace gravel, granule to pebble-sized clasts, medium to dark yellowish-brown, loose, moist, roots. | 2.2 | 7.0 | ND | ND |
| 10 | | | | | Silt, trace to little clay, trace to little gravel, pebble sized clasts, medium to dark yellowish-brown, firm, dry-moist. | | | | |
| 12 | | | | | | | | | |
| 10 | | | | | | | | | |
| 5 | 16 | 55 | | | Silt, trace to little clay, trace to little gravel, cobble-sized clasts, medium to dark yellowish-brown, firm, moist. | 2.2 | 6.0 | ND | ND |
| | 24 | | | | | | | | |
| | 106 | | | | | | | | |
| | 100 | | | | Sand and silt, trace gravel, loose, moist. | | | | |
| | | | | | Silt, trace to little clay, trace to little gravel, cobble-sized clasts, medium to dark yellowish-brown, firm, moist. | | | | |
| 10 | 17 | 75 | | | Silt, trace clay, little gravel, pebble-sized clasts, medium grey brown, firm, moist-dry, roots, no odor. | 16.5 | 50.4 | 7,052 | 6,130 |
| | 14 | | | | Silt, some sand, trace gravel, pebble-sized clasts, dark yellowish-brown, wet, strong petroleum odor. | | | | |
| | 10 | | | | | | | | |
| | 8 | | | | | | | | |
| | | | | | | | | | |
| | 4 | 0 | | | | NR | NR | - | - |
| | 14 | | | | | | | | |
| | 15 | | | | | | | | |
| | 21 | | | | | | | | |
| 15 | 5 | 95 | | | Silt, trace to little sand, trace gravel, pebble-sized clasts, medium reddish to yellowish-brown, firm, wet, no odor. | 41.4 | 20.4 | - | - |
| | 16 | | | | | | | | |
| | 20 | | | | | | | | |
| | 21 | | | | | | | | |
| | | | | | Boring Terminated at 15 ft. - Borehole Abandoned by Procedures Stated in Work Plan. | | | | |

DULUTH RFI

DULUTH, MINNESOTA, SITE 21

O P T E C H

OPERATIONAL TECHNOLOGIES
CORPORATION

LOG OF BORING 021-25BH

| | | | |
|------------------|-------------------------------------|--------------------|-------------------------------------|
| Project No.: | 1308-101 | Sampling Method: | Stainless-Steel Split-Spoon Sampler |
| Logged By: | Kathryn Pritchett | Depth Drilled: | 15.0 ft. |
| Drilling Co.: | Huntingdon Engineering and Environ. | Depth To Water: | 12.0 ft. BLS |
| Driller: | Jim Saugestad/Steve Sterk | Date Measured: | 07/12/94 |
| Date Drilled: | 07/12/94 | Surface Elevation: | 1413.95 ft. |
| Drilling Method: | Hollow-Stem Auger | | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|----------------------|----------|------------|-------------|---------|---|-----------------|---------------|---------------|------------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) |
| 2 5 11 15 | | 75 | X X X | | Silt, little to some gravel, granule to cobble-sized clasts, medium to dark yellowish-brown, loose, dry, no odor, roots. | 0 | 13.5 | 88 | 82 |
| 5 | | | | | | | | | |
| 16 20 21 14 | | 80 | X X X | | Silt, trace to little clay, little to some gravel, granule to cobble-sized clasts, dark yellowish-brown, loose, dry, moist at very end, roots, no odor. | 3.6 | 17.1 | ND | ND |
| 3 7 8 16 | | 90 | X X X | | Silt, little clay, little to some gravel, granule to cobble-sized clasts, dark-reddish to yellowish-brown, firm, wet, rotten gabbra clasts, no odor. | 1.1 | 15.6 | 58 | 58 |
| 15 | | | | | Boring Terminated at 15 ft. - Borehole Abandoned by Procedures Stated in Work Plan. | | | | |

DULUTH, MINNESOTA, SITE 21

**OPERATIONAL TECHNOLOGIES
CORPORATION**

LOG OF BORING 021-26BH

| | |
|-------------------------|-------------------------------------|
| Project No.: | 1308-101 |
| Logged By: | Kathleen Merino |
| Drilling Co.: | American Engineering Testing |
| Driller: | J. Tuura |
| Date Drilled: | 05/16/95 |
| Drilling Method: | Hollow Stem Auger |

| | |
|---------------------------|----------------------------|
| Sampling Method: | Split-Spoon Sampler |
| Depth Drilled: | 10.0 ft. |
| Depth To Water: | NA |
| Date Measured: | NA |
| Surface Elevation: | 1396.95 ft. |

[illegible]

DULUTH, MINNESOTA, SITE 21

**OPERATIONAL TECHNOLOGIES
CORPORATION**


| | | | |
|-------------------------|-------------------------------------|---------------------------|----------------------------|
| Project No.: | 1308-101 | Sampling Method: | Split-Spoon Sampler |
| Logged By: | Kathleen Merino | Depth Drilled: | 10.0 ft. |
| Drilling Co.: | American Engineering Testing | Depth To Water: | NA |
| Driller: | J. Tuura | Date Measured: | NA |
| Date Drilled: | 05/16/95 | Surface Elevation: | 1394.81 ft. |
| Drilling Method: | Hollow Stem Auger | | |

[illegible]

DULUTH, MINNESOTA, SITE 21

**OPERATIONAL TECHNOLOGIES
CORPORATION**

| | | | |
|-------------------------|-------------------------------------|---------------------------|----------------------------|
| Project No.: | 1308-101 | Sampling Method: | Split-Spoon Sampler |
| Logged By: | Kathleen Merino | Depth Drilled: | 6.0 ft. |
| Drilling Co.: | American Engineering Testing | Depth To Water: | NA |
| Driller: | J. Tuura | Date Measured: | NA |
| Date Drilled: | 05/16/95 | Surface Elevation: | 1393.22 ft. |
| Drilling Method: | Hollow Stem Auger | | |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | |
|------------------------------|-------------------|------------|---------|--|--|-----------------|---------------|---|---|
| | | | | | | PID (ppm) | ATHA (ppm) | - | - |
| 4 | 4 | 60 | X |  | Silt, little sand (medium to coarse), trace gravel (up to cobble), moist, dark brown (7.5 yr 4/4). | 0.0 | - | | |
| 4 | 4 | | | | | | | | |
| 5 | 6 18 5 1 | 30 | X | | Silt, little sand (medium to coarse), trace gravel (up to cobble), moist, dark brown (7.5 yr 4/4). | 0.0 | - | | |
| Boring Terminated at 6.0 ft. | | | | | | | | | |

DULUTH RFI

DULUTH, MINNESOTA, SITE 21

O P T E C H

OPERATIONAL TECHNOLOGIES
CORPORATION

LOG OF BORING 021-26MW

| | | | |
|-------------------------|--|---------------------------|--|
| Project No.: | 1308-101 | Sampling Method: | Stainless-Steel Split-Spoon Sampler |
| Logged By: | Kathryn Pritchett | Depth Drilled: | 19.0 ft. |
| Drilling Co.: | Huntingdon Engineering and Environ. | Depth To Water: | 6.5 ft. BLS |
| Driller: | Jim Saugestad/Steve Sterk | Date Measured: | 07/15/94 |
| Date Drilled: | 07/15/94 | Surface Elevation: | 1393.37 ft. |
| Drilling Method: | Hollow-Stem Auger | TOC Elevation: | 1396.10 ft. |

| Depth (ft.) | Blows/6" | % Recovery | Samples | Graphic | DESCRIPTION OF MATERIALS | FIELD SCREENING | | | | Monitoring Well |
|-------------|----------|------------|---------|---------|---|-----------------|---------------|---------------|------------------|-----------------|
| | | | | | | PID (ppm) | ATHA (ppm) | BTEX (ppb) | Benzene (ppb) | |
| 5 | 6 | 40 | | | Silt and sand, some gravel, dark yellowish to grey brown, loose, dry, no odor. | 0 | 4.0 | ND | ND | |
| | 4 | | | | | | | | | |
| | 4 | | | | | | | | | |
| | 4 | | | | | | | | | |
| 10 | 4 | 10 | | | | NR | NR | - | - | |
| | 11 | | | | | | | | | |
| | 7 | | | | | | | | | |
| | 8 | | | | | | | | | |
| 15 | 1 | 40 | | | Peat, some silt, medium to dark grey brown, wet, no odor. | 0 | 0 | ND | ND | |
| | 2 | | | | | | | | | |
| | 3 | | | | | | | | | |
| | 4 | | | | | | | | | |
| 20 | 3 | 65 | | | Silt, little gravel, pebble-sized clasts, medium reddish to yellowish-brown, firm, soft, wet. | 0 | 0 | ND | ND | |
| | 6 | | | | | | | | | |
| | 9 | | | | | | | | | |
| | 12 | | | | | | | | | |
| 25 | 5 | 100 | | | Silt, little gravel, cobble-sized clasts, medium reddish to yellowish-brown, firm, soft, wet. | 0 | 0 | ND | ND | |
| | 11 | | | | | | | | | |
| | 18 | | | | | | | | | |
| | 15 | | | | | | | | | |
| 20 | | | | | Boring Terminated at 19 ft. - Monitor Well was Constructed upon Drilling Borehole. | | | | | |

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APPENDIX D

MONITOR WELL CONSTRUCTION RECORD

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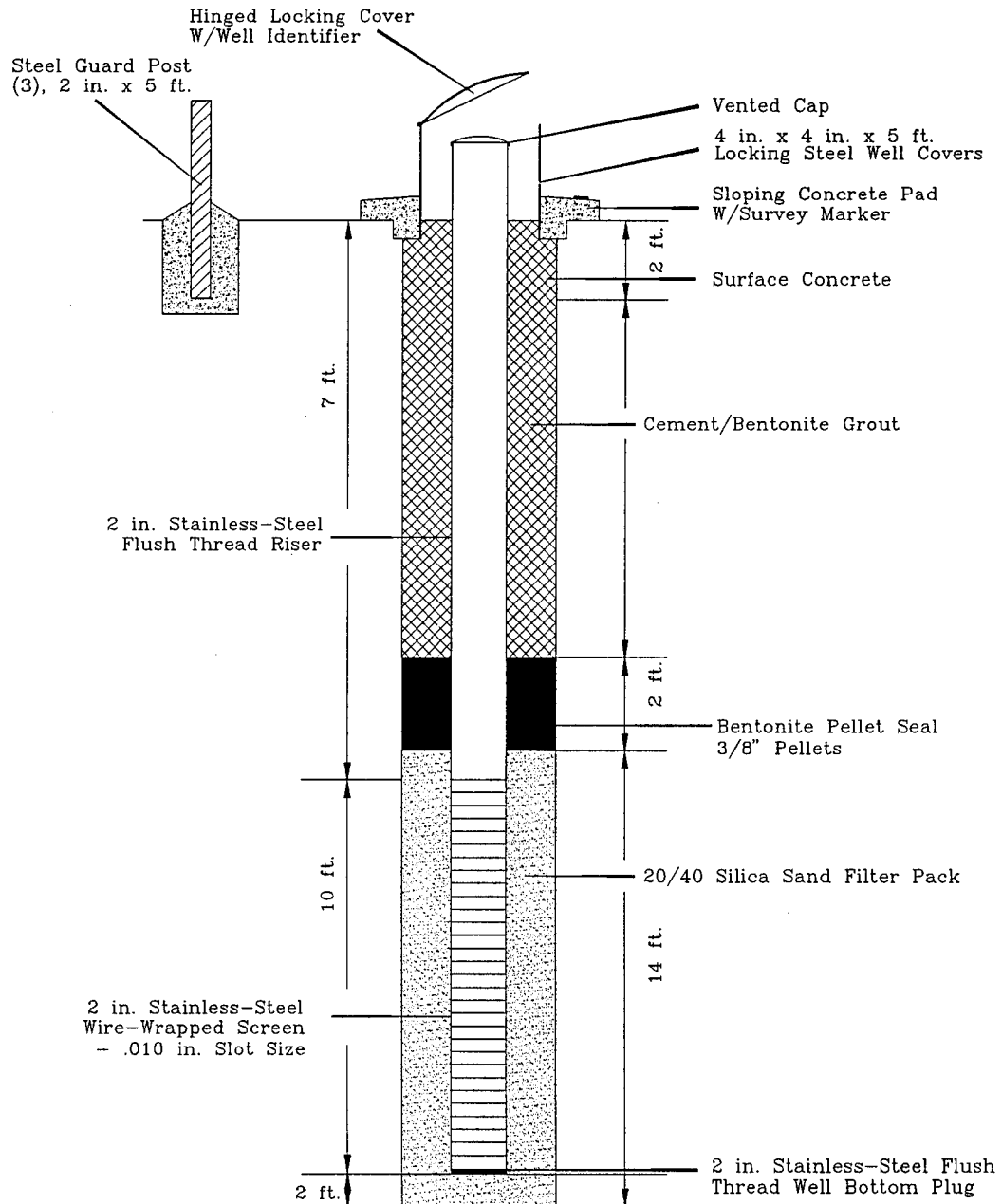
SECTION D.1 INTRODUCTION

The monitor well for Site 21 was constructed as specified in Addendum 1 to RCRA Facility Investigation. The monitor well construction diagram displays the water-level data and well construction information for the well. Monitor well construction information includes an outline of the monitor well and contains the depth of the borehole, the screened interval, and the sand packed and bentonite interval.

Also included in this appendix is a copy of the well record for the Minnesota Department of Health.

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| | | | |
|-------------------|-------------|------------------------|--|
| Project: | Duluth RFI | Date Installed: | 07/14/94 |
| Town/City: | Duluth | Drilling Contractor: | Huntingdon Engin. and Environmental |
| State: | Minnesota | Drilling Method: | Hollow-Stem Auger |
| TOC Elev: | 1396.10 ft. | Borehole Diameter: | 6.25 in. |
| Ground Elev.: | 1393.37 ft. | Development Technique: | Stainless-Steel Split-Spoon Sampler |
| Water Level: | 6.5 ft. TOC | | |
| Total Well Depth: | 19.0 ft. | | Not To Scale |



MONITOR-WELL CONSTRUCTION LOG
 Well No. 021-26MW
 Minnesota Boring No. MW 920-120

OPT ECH
 OPERATIONAL TECHNOLOGIES
 CORPORATION
 OCTOBER 1994 DULUTH MONLOG

WELL LOCATION
County Name
ST. LOUIS

MINNESOTA DEPARTMENT OF HEALTH
WELL RECORD
Minnesota Statutes Chapter 103I

MINNESOTA UNIQUE WELL NO.

547861

Township Name Herman Township No. 50 Range No. 14 Section No. 6 Fraction NE 1/4 NW 1/4

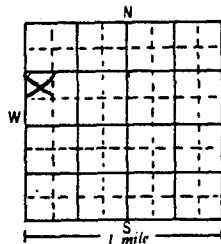
WELL DEPTH (completed) 17 ft. Date Work Completed 7-15-94

Numerical Street Address and City of Well Location
Duluth Int. Airport

DRILLING METHOD
☐ Cable Tool ☐ Driven ☐ Dug
☐ Auger ☒ Rotary ☐ Jetted

Show exact location of well in section grid with "X".

Sketch map of well location.
Showing property lines,
roads and buildings.



DRILLING FLUID
NONE

USE
☐ Domestic ☒ Monitoring ☐ Heating/Cooling
☐ Irrigation ☐ Public ☐ Industry/Commercial
☐ Test Well ☐ Dewatering ☐ Remedial

CASING Drive Shoe? ☐ Yes ☒ No
☒ Steel ☒ Threaded ☐ Welded
☐ Plastic ☐

HOLE DIAM.

CASING DIAMETER WEIGHT
2 in. to 7 ft. 12 in. to 17 ft.
_____ in. to _____ ft. _____ lbs./ft. _____ in. to _____ ft. _____ lbs./ft.
_____ in. to _____ ft. _____ lbs./ft. _____ in. to _____ ft. _____ lbs./ft.

PROPERTY OWNER'S NAME
Minnesota Air National Guards Duluth

Mailing address if different than property address indicated above.

SCREEN OPEN HOLE
Make Johnson from _____ ft. to _____ ft.
Type Stainless Diam. 2
Slot/Gauze 20 Length 10
Set between 7 ft. and 17 ft. FITTINGS: MXF

GEOLOGICAL MATERIALS COLOR HARDNESS OF MATERIAL FROM TO

| | | | | |
|---------------------|----|-------|----|----|
| fill, SAND & GRAVEL | BN | LOOSE | 0 | 5 |
| Peat | BN | LOOSE | 5 | 9 |
| Silt & Peat | BN | MED | 9 | 17 |
| SAND w/ GRAVEL | BN | HARD | 17 | 19 |

STATIC WATER LEVEL
5 ft. ☒ below ☐ above land surface Date measured 7-15-94

PUMPING LEVEL (below land surface)
N/A ft. after _____ hrs. pumping _____ g.p.m.

WELL HEAD COMPLETION
☐ Pitless adapter manufacturer N/A Model _____
☐ Casing Protection _____ ☐ 12 in. above grade

GROUTING INFORMATION
Well grouted? ☒ Yes ☐ No
Grout Material ☒ Neat cement ☐ Bentonite
from 0 to 3 ft. 2 yds. ☒ bags
from _____ to _____ ft. _____ yds. ☐ bags
from _____ to _____ ft. _____ yds. ☐ bags

NEAREST KNOWN SOURCE OF CONTAMINATION
N/A feet _____ direction _____ type
Well disinfected upon completion? ☐ Yes ☐ No

PUMP
☒ Not installed Date installed _____
Manufacturer's name _____
Model number _____ HP _____ Volts _____
Length of drop pipe _____ ft. Capacity _____ g.p.m.
Pressure Tank Capacity _____
Type: ☐ Submersible ☐ L.S. Turbine ☐ Reciprocating ☐ Jet ☐

ABANDONED WELLS
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

WELL CONTRACTOR CERTIFICATION
This well was drilled under my supervision and in accordance with Minnesota Rules, Chapter 4725.
The information contained in this report is true to the best of my knowledge.

REMARKS, ELEVATION, SOURCE OF DATA, etc.

Licensee Business Name

Lic. or Reg. No.

Authorized Representative Signature

Date

JAMES SAUGSTAD
Name of Driller

7-28-94
Date

PIEZOMETER FIELD DATA SHEET

JOB NO. 8400-94-107

PIEZOMETER NO. _____

(Indicate if in separate borehole)

CREW CHIEF J. Saugestad

BORING NO. MW 920 120

GROUND ELEVATION AND DATUM _____

Diagram labels and data:

- VENTED CAP**
- PROTECTIVE CASING**
 - Diameter and Type: 4" CASING
 - Total Length: 5.0
 - Length Above Ground: 3.1
- THICKNESS AND TYPE OF SEAL**: Grout
- DIAMETER AND TYPE OF RISER PIPE**: 2" Stainless
- TYPE OF BACKFILL AROUND RISER**: Grout
- THICKNESS AND TYPE OF SEAL**: Pellets 2'
- DEPTH TO TOP OF FILTER SAND**: 5'
- TYPE OF PIEZOMETER**: Stainless
 - Galvanized Carbon Steel
 - PVC
 - Other (State)
- DIAMETER AND LENGTH OF SCREEN**: 2" x 10'
- SCREEN GAUGE OR SIZE OF OPENINGS (SLOT NO.)**: .010
- TYPE OF FILTER AROUND SCREEN**: Density
- DEPTH TO BOTTOM OF PIEZOMETER**: 17.0
- DEPTH TO BOTTOM OF FILTER SAND**: 19.0
- THICKNESS AND TYPE OF SEAL**: None
- DIAMETER OF BOREHOLE**: 6 1/4 ID

Dimensions from diagram:

- RISER PIPE ABOVE GROUND: 3'
- TOTAL RISER PIPE: 10'
- DEPTH OF BORING: 19'
- PIEZOMETER: 10'

Operation Started: Date 7-15-94 Time 11:20
 Operation Complete: Date 7-15-94 Time 14:50

Drilling Method: _____
 Drilling Fluid: _____
 Water from _____ to _____
 Bentonite from _____ to _____
 Revert from _____ to _____

PIEZOMETER WATER LEVEL MEASUREMENTS

| Date | Time | Bailed Depths | Water Level |
|------|------|---------------|-------------|
| | | to | |
| | | to | |
| | | to | |
| | | to | |
| | | to | |

REMARKS:

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APPENDIX E
WELL DEVELOPMENT LOG

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SECTION E.1 INTRODUCTION

This appendix contains the well development log for the monitor well installed during the Addendum 1 RCRA Facility Investigation for Site No. 21 at the Minnesota Air National Guard Base, Duluth, Minnesota. The well development log and a photograph of purged water are included.

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DULUTH AIR NATIONAL GUARD BASE RFI
DAHA90-91-D-0002/01 (1308-101-139)

WELL DEVELOPMENT LOG

Monitor Well: 021-026MW

Development Start: (Date) 7/20/94 (Time) 07:30

Development End : (Date) 7/20/94 (Time) 09:25

Developed By : Huntingdon Engineering and Environmental

PID Reading : (Background) 0 ppm (Reading) 0 ppm

Depth to Water (BTOC): 7.92' Depth to Bottom of Well (BTOC): 20.23'

Volume of Water in the Well:

$$V_{(gal)} = [0.0408] \times [\text{Well Diameter (inches)}]^2 \times [\text{Height of Water in Well (feet)}]$$

$$[0.0408] \times [2"]^2 \times [12.31']$$

$$V_{(gal)} = 2$$

$$V_{(gal)} \times 3 = 6$$

Development Method : 2" PVC Bailer Containment : Plastic-lined, steel, 55-gal drum

Average Rate of Removal of Water : ~0.5 gal/min.

Weather : Sunny, mid 60's

Comments : Bailer was decontaminated as required by Work Plan. Purged dry.

| Time | Amount of Water Removed (gallons) | Temperature (°F) | pH | Conductivity (μS/cm) | Clarity |
|-------|-----------------------------------|------------------|------|----------------------|-----------------|
| 08:07 | 6 | 64.3 | 5.66 | 596 | cloudy |
| 08:12 | 8 | 62.8 | 5.94 | 640 | cloudy |
| 08:19 | 10 | 63.4 | 6.14 | 696 | cloudy |
| 08:23 | 12 | 65.4 | 6.32 | 764 | cloudy |
| 08:30 | 14 | 65.8 | 6.45 | 636 | cloudy |
| 08:35 | 16 | 65.2 | 6.69 | 570 | cloudy |
| 08:40 | 18 | 62.9 | 6.78 | 486 | cloudy |
| 08:43 | 20 | 55.7 | 6.86 | 635 | cloudy |
| 08:48 | 22 | 54.1 | 7.01 | 587 | cloudy |
| 08:55 | 24 | 55.2 | 7.14 | 712 | cloudy |
| 09:04 | 25 | 55.4 | 7.13 | 870 | cloudy |
| 09:07 | 26 | 55.4 | 7.11 | 862 | slightly cloudy |
| 09:12 | 27 | 55.1 | 7.14 | 863 | slightly cloudy |



Photography of water purged from monitor well
021-026MW on 20 July 1994.

APPENDIX F
WELL PURGING AND SAMPLING LOGS

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SECTION F.1 INTRODUCTION

This appendix contains the well purging and well sampling logs of the Addendum 1 RCRA Facility Investigation for Site No. 21 at the Minnesota Air National Guard Base, Duluth, Minnesota. A summary of the well purging logs and well sampling logs follow.

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DULUTH AIR NATIONAL GUARD BASE RFI
DAHA90-91-D-0002/01 (1308-101-139)

WELL PURGING LOG

Monitor Well No.: 021-009MW

Purge Start: (Date) 7/22/94 (Time) 08:00

Purge End: (Date) 7/22/94 (Time) 08:30

Purged By: Kathryn Pritchett, Joe Byrd, Jr., and Ruben Torres

Background PID Reading: 0 ppm PID Reading: 0 ppm

Depth to Water (BTOC): 10.84' Depth to Bottom of Well (BTOC): 19.92'

Volume of Water in Well (gallons) = $(0.0408) \times (\text{well diameter (inches)})^2 \times \text{height of water column (feet)}$

$$V = (0.0408) \times (2") \times (9.08') = 1.5 \text{ gallons}$$

$$\text{Volume of Water in Well} \times 3 = 4.5 \text{ gallons}$$

Purge method: 2" PVC Bailer

Purge Water Containment: Plastic-lined, steel, 55-gallon drum

Average Rate of Removal of Water: ~0.3 gal./min.

Weather: Cloudy, 60's

Comments: Bailer was decontaminated as required by Work Plan. Purged dry.

| Time | Amount of Water Removed (gallons) | Temperature (°F) | pH | Conductivity (μS/cm) | Clarity |
|------|-----------------------------------|------------------|------|----------------------|---------|
| 8:20 | 4.5 | 55.8 | 6.60 | 1481 | Cloudy |
| 8:25 | 6.5 | 54.2 | 6.58 | 1496 | Cloudy |
| 8:27 | 7 | 54.2 | 6.53 | 1481 | Cloudy |

DULUTH AIR NATIONAL GUARD BASE RFI
DAHA90-91-D-0002/01 (1308-101-139)

WELL PURGING LOG

Monitor Well No.: 021-009MW

Purge Start: (Date) 10/06/94 (Time) 09:45

Purge End: (Date) 10/06/94 (Time) 10:22

Purged By: Kathryn Pritchett and Jeff Blunt

Background PID Reading: 0 ppm PID Reading: 0 ppm

Depth to Water (BTOC): 11.52' Depth to Bottom of Well (BTOC): 19.89'

Volume of Water in Well (gallons) = $(0.0408) \times (\text{well diameter (inches)})^2 \times \text{height of water column (feet)}$

$$V = (0.0408) \times (2") \times (8.37') = 1.4 \text{ gallons}$$

$$\text{Volume of Water in Well} \times 3 = 4.1 \text{ gallons}$$

Purge method: 2" Teflon™ Bailer

Purge Water Containment: Plastic-lined, steel, 55-gallon drum

Average Rate of Removal of Water: ~0.2 gal./min.

Weather: Cloudy, 50's, 40% chance of rain

Comments: Bailer was decontaminated as required by Work Plan. Purged dry.

| Time | Amount of Water Removed (gallons) | Temperature (°C) | pH | Conductivity (μS/cm) | Clarity |
|-------|-----------------------------------|------------------|------|----------------------|-----------------|
| 10:02 | 4 | 13.0 | 6.51 | 896 | Cloudy |
| 10:12 | 5.5 | 12.0 | 6.52 | 698 | Slightly cloudy |
| 10:17 | 6.5 | 12.0 | 6.60 | 821 | Cloudy |
| 10:22 | 7 | 12.0 | 6.65 | 825 | Cloudy |

DULUTH AIR NATIONAL GUARD BASE RFI
DAHA90-91-D-0002/01 (1308-101-139)

WELL PURGING LOG

Monitor Well No.: 021-010MW

Purge Start: (Date) 7/22/94 (Time) 10:00

Purge End: (Date) 7/22/94 (Time) 10:40

Purged By: Kathryn Pritchett, Joe Byrd, Jr., and Ruben Torres

Background PID Reading: 0 ppm PID Reading: 0 ppm

Depth to Water (BTOC): 6.86' Depth to Bottom of Well (BTOC): 17.56'

Volume of Water in Well (gallons) = $(0.0408) \times (\text{well diameter (inches)})^2 \times \text{height of water column (feet)}$

$$V = (0.0408) \times (2") \times (10.70') = 1.7 \text{ gallons}$$

$$\text{Volume of Water in Well} \times 3 = 5.2 \text{ gallons}$$

Purge method: 2" PVC Bailer

Purge Water Containment: Plastic-lined, steel, 55-gallon drum

Average Rate of Removal of Water: ~0.3 gal./min.

Weather: Cloudy, 60's

Comments: Bailer was decontaminated as required by Work Plan. Purged dry.

| Time | Amount of Water Removed (gallons) | Temperature (°F) | pH | Conductivity (μS/cm) | Clarity |
|-------|-----------------------------------|------------------|------|----------------------|---------|
| 10:20 | 5 | 60.2 | 5.89 | 734 | Cloudy |
| 10:25 | 6.5 | 59.4 | 6.18 | 721 | Cloudy |
| 10:28 | 8 | 56.7 | 6.35 | 681 | Cloudy |
| 10:35 | 8.5 | 55.1 | 6.43 | 670 | Cloudy |
| 10:37 | 8.5 | 55.1 | 6.71 | 683 | Cloudy |

DULUTH AIR NATIONAL GUARD BASE RFI
DAHA90-91-D-0002/01 (1308-101-139)

WELL PURGING LOG

Monitor Well No.: 021-010MW

Purge Start: (Date) 10/06/94 (Time) 13:20

Purge End: (Date) 10/06/94 (Time) 14:10

Purged By: Kathryn Pritchett and Jeff Blunt

Background PID Reading: 0 ppm PID Reading: 0 ppm

Depth to Water (BTOC)L: 6.79' Depth to Bottom of Well (BTOC): 17.71'

Volume of Water in Well (gallons) = $(0.0408) \times (\text{well diameter (inches)})^2 \times \text{height of water column (feet)}$

$$V = (0.0408) \times (2") \times (10.92') = 1.8 \text{ gallons}$$

$$\text{Volume of Water in Well} \times 3 = 5.3 \text{ gallons}$$

Purge method: 2" Teflon™ Bailer

Purge Water Containment: Plastic-lined, steel, 55-gallon drum

Average Rate of Removal of Water: ~0.3 gal./min.

Weather: Cloudy, 50's, 40% chance of rain

Comments: Bailer was decontaminated as required by Work Plan. Purged dry.

| Time | Amount of Water Removed (gallons) | Temperature (°C) | pH | Conductivity (μS/cm) | Clarity |
|-------|-----------------------------------|------------------|------|----------------------|----------------------|
| 13:45 | 5 | 14.5 | 6.65 | 1046 | Clear - grey - black |
| 13:51 | 6.5 | 14.0 | 6.71 | 1002 | grey |
| 13:55 | 8 | 13.5 | 6.81 | 906 | Clear - grey tint |
| 14:00 | 9.5 | 13.5 | 7.06 | 788 | Clear - brown tint |
| 14:05 | 11 | 13.0 | 7.15 | 778 | Clear - brown |
| 14:10 | 12 | 13.5 | 7.15 | 790 | Cloudy |

DULUTH AIR NATIONAL GUARD BASE RFI
DAHA90-91-D-0002/01 (1308-101-139)

WELL PURGING LOG

Monitor Well No.: 021-014MW

Purge Start: (Date) 7/22/94 (Time) 15:35

Purge End: (Date) 7/22/94 (Time) 16:11

Purged By: Kathryn Pritchett, Joe Byrd, Jr., and Ruben Torres

Background PID Reading: 0 ppm PID Reading: 0 ppm

Depth to Water (BTOC): 4.87' Depth to Bottom of Well (BTOC): 14.88'

Volume of Water in Well (gallons) = $(0.0408) \times (\text{well diameter (inches)})^2 \times \text{height of water column (feet)}$

$$V = (0.0408) \times (2") \times (10.01') = 1.6 \text{ gallons}$$

$$\text{Volume of Water in Well} \times 3 = 4.9 \text{ gallons}$$

Purge method: 2" PVC Bailer

Purge Water Containment: Plastic-lined, steel, 55-gallon drum

Average Rate of Removal of Water: ~0.7 gal./min.

Weather: Cloudy, 60's

Comments: Bailer was decontaminated as required by Work Plan. Purged dry.

| Time | Amount of Water Removed (gallons) | Temperature (°F) | pH | Conductivity (μS/cm) | Clarity |
|-------|-----------------------------------|------------------|------|----------------------|---------|
| 15:50 | 6 | 63.6 | 6.68 | 1654 | Cloudy |
| 15:53 | 8 | 59.6 | 6.83 | 1673 | Cloudy |
| 15:56 | 10 | 59.3 | 7.06 | 1731 | Cloudy |
| 16:00 | 13 | 59.2 | 7.31 | 1721 | Cloudy |
| 16:04 | 15 | 59.0 | 7.29 | 1711 | Cloudy |
| 16:07 | 17 | 59.3 | 7.38 | 1711 | Cloudy |

DULUTH AIR NATIONAL GUARD BASE RFI
DAHA90-91-D-0002/01 (1308-101-139)

WELL PURGING LOG

Monitor Well No.: 021-014MW

Purge Start: (Date) 10/06/94 (Time) 10:30

Purge End: (Date) 10/06/94 (Time) 11:45

Purged By: Kathryn Pritchett and Jeff Blunt

Background PID Reading: 0 ppm PID Reading: 0 ppm

Depth to Water (BTOC): 4.83' Depth to Bottom of Well (BTOC): 14.79'

Volume of Water in Well (gallons) = $(0.0408) \times (\text{well diameter (inches)})^2 \times \text{height of water column (feet)}$

$$V = (0.0408) \times (2") \times (9.96') = 1.6 \text{ gallons}$$

$$\text{Volume of Water in Well} \times 3 = 4.9 \text{ gallons}$$

Purge method: 2" Teflon™ Bailer

Purge Water Containment: Plastic-lined, steel, 55-gallon drum

Average Rate of Removal of Water: ~0.4 gal./min.

Weather: Cloudy, 50's, 40% chance of rain

Comments: Bailer was decontaminated as required by Work Plan.

| Time | Amount of Water Removed (gallons) | Temperature (°C) | pH | Conductivity (μS/cm) | Clarity |
|-------|-----------------------------------|------------------|------|----------------------|-----------------|
| 11:20 | 5 | 13.0 | 6.54 | 1481 | Slightly cloudy |
| 11:24 | 6.5 | 13.0 | 6.56 | 1844 | cloudy |
| 11:28 | 8 | 13.0 | 6.58 | 1807 | cloudy |
| 11:32 | 9.5 | 13.0 | 6.58 | 1719 | cloudy |
| 11:38 | 11 | 13.0 | 6.61 | 1652 | cloudy |
| 11:42 | 12.5 | 13.0 | 6.63 | 1654 | cloudy |
| 11:45 | 14 | 13.0 | 6.68 | 1645 | cloudy |

DULUTH AIR NATIONAL GUARD BASE RFI
DAHA90-91-D-0002/01 (1308-101-139)

WELL PURGING LOG

Monitor Well No.: 021-026MW

Purge Start: (Date) 7/22/94 (Time) 11:25

Purge End: (Date) 7/22/94 (Time) 13:10

Purged By: Kathryn Pritchett, Joe Byrd, Jr., and Ruben Torres

Background PID Reading: 0 ppm PID Reading: 0 ppm

Depth to Water (BTOC): 8.21' Depth to Bottom of Well (BTOC): 20.22'

Volume of Water in Well (gallons) = $(0.0408) \times (\text{well diameter (inches)})^2 \times \text{height of water column (feet)}$

$$V = (0.0408) \times (2") \times (12.01') = 2.0 \text{ gallons}$$

$$\text{Volume of Water in Well} \times 3 = 6 \text{ gallons}$$

Purge method: 2" PVC Bailer

Purge Water Containment: Plastic-lined, steel, 55-gallon drum

Average Rate of Removal of Water: ~0.6 gal./min.

Weather: Cloudy, 60's

Comments: Bailer was decontaminated as required by Work Plan.

| Time | Amount of Water Removed (gallons) | Temperature (°F) | pH | Conductivity (µS/cm) | Clarity |
|-------|-----------------------------------|------------------|------|----------------------|---------|
| 11:50 | 6 | 62.4 | 7.31 | 703 | Cloudy |
| 11:55 | 8 | 62.4 | 7.31 | 751 | Cloudy |
| 12:00 | 10 | 62.5 | 7.03 | 861 | Cloudy |
| 12:04 | 12 | 61.1 | 6.99 | 905 | Cloudy |
| 12:08 | 14 | 61.2 | 7.00 | 967 | Cloudy |
| 12:14 | 16 | 62.5 | 6.99 | 1103 | Cloudy |
| 12:20 | 18 | 61.9 | 6.82 | 1129 | Cloudy |
| 12:25 | 20 | 61.5 | 6.79 | 1130 | Cloudy |
| 12:29 | 22 | 61.5 | 6.77 | 1193 | Cloudy |
| 12:32 | 24 | 60.9 | 6.73 | 1271 | Cloudy |
| 12:39 | 26 | 60.4 | 6.73 | 1254 | Cloudy |
| 12:41 | 28 | 59.8 | 6.98 | 908 | Cloudy |
| 12:45 | 30 | 58.1 | 7.11 | 835 | Cloudy |
| 12:50 | 32 | 57.4 | 7.33 | 669 | Cloudy |
| 12:55 | 34 | 55.7 | 7.70 | 624 | Cloudy |
| 13:01 | 36 | 55.2 | 7.81 | 684 | Cloudy |
| 13:07 | 38 | 56.4 | 7.85 | 722 | Cloudy |
| 13:10 | 40 | 58.4 | 7.60 | 777 | Cloudy |

DULUTH AIR NATIONAL GUARD BASE RFI
DAHA90-91-D-0002/01 (1308-101-139)

WELL PURGING LOG

Monitor Well No.: 021-026MW

Purge Start: (Date) 10/06/94 (Time) 14:15

Purge End: (Date) 10/06/94 (Time) 15:24

Purged By: Kathryn Pritchett and Jeff Blunt

Background PID Reading: 0 ppm PID Reading: 0 ppm

Depth to Water (BTOC): 7.65' Depth to Bottom of Well (BTOC): 20.38'

Volume of Water in Well (gallons) = $(0.0408) \times (\text{well diameter (inches)})^2 \times \text{height of water column (feet)}$

$$V = (0.0408) \times (2'') \times (12.73') = 2.1 \text{ gallons}$$

$$\text{Volume of Water in Well} \times 3 = 6.2 \text{ gallons}$$

Purge method: 2" Teflon™ Bailer

Purge Water Containment: Plastic-lined, steel, 55-gallon drum

Average Rate of Removal of Water: ~0.4 gal./min.

Weather: Cloudy, 50's, 40% chance of rain

Comments: Bailer was decontaminated as required by Work Plan.

| Time | Amount of Water Removed (gallons) | Temperature (°C) | pH | Conductivity (μS/cm) | Clarity |
|-------|-----------------------------------|------------------|------|----------------------|-----------------|
| 15:00 | 6 | 14.0 | 7.47 | 637 | Slightly cloudy |
| 15:04 | 8 | 13.5 | 7.48 | 697 | Slightly cloudy |
| 15:08 | 10 | 13.0 | 7.47 | 590 | Slightly cloudy |
| 15:12 | 12 | 13.0 | 7.55 | 544 | Slightly cloudy |
| 15:19 | 14 | 12.5 | 7.62 | 535 | Slightly cloudy |
| 15:24 | 16 | 12.5 | 7.63 | 538 | Slightly cloudy |

DULUTH AIR NATIONAL GUARD BASE RFI
DAHA90-91-D-0002/01 (1308-101-139)

WELL SAMPLING LOG

Monitor Well No.: 021-009MW

Sample Start: (Date) 7/22/94 (Time) 09:30

Sample End: (Date) 7/22/94 (Time) 09:50

Sampled By: Kathryn Pritchett, Joe Byrd, Jr., and Ruben Torres

Background PID Reading: 0 ppm PID Reading: 0 ppm

Depth to Water (BTOC): 10.84'

Screen Interval: 10.41' - 20.41' BTOC

Sampling method: 2" Teflon™ Bailer

Sampling Equipment Decontamination method: Bailer was decontaminated as required by Work Plan.

Lab Analyses: (3) 40-ml vials VOC (SW 8240) preserved with HCL
(1) 500-ml Poly Metals (SW 6010/7000) preserved with HNO₃

QA/QC Samples: Equipment rinseate blank 021-RB04
Field blank - 021-FB01
Analyses same as 021-009MW-GW01

Weather: Cloudy, 60's

Comments:

| Time | Temperature (°F) | pH | Conductivity (μS/cm) | Clarity |
|------|---------------------|------|-------------------------|---------|
| 9:30 | 57.6 | 5.83 | 1330 | Cloudy |

DULUTH AIR NATIONAL GUARD BASE RFI
DAHA90-91-D-0002/01 (1308-101-139)

WELL SAMPLING LOG

Monitor Well No.: 021-009MW

Sample Start: (Date) 10/06/94 (Time) 10:40

Sample End: (Date) 10/06/94 (Time) 10:50

Sampled By: Kathryn Pritchett and Jeff Blunt

Background PID Reading : 0 ppm PID Reading: 0 ppm

Depth to Water (BTOC): 11.52'

Screen Interval: 10.41' - 20.41' BTOC

Sampling method: 2" Teflon™ Bailer

Sampling Equipment Decontamination method: Bailer was decontaminated as required by Work Plan.

Lab Analyses: (3) 40-ml vials VOC (SW 8240) preserved with HCL
021-009MW-GW02

QA/QC Samples: Equipment rinseate blank sample of the 2" Teflon™ bailer - 021-RB08
Analyses same as 021-009MW-GW02

Weather: Cloudy, 50's, 40% chance of rain

Comments:

| Time | Temperature (°C) | pH | Conductivity (μ S/cm) | Clarity |
|-------|---------------------|------|-------------------------------|---------|
| 10:40 | 12.5 | 6.65 | 869 | cloudy |

DULUTH AIR NATIONAL GUARD BASE RFI
DAHA90-91-D-0002/01 (1308-101-139)

WELL SAMPLING LOG

Monitor Well No.: 021-010MW

Sample Start: (Date) 7/22/94 (Time) 10:55

Sample End: (Date) 7/22/94 (Time) 11:15

Sampled By: Kathryn Pritchett, Joe Byrd, Jr., and Ruben Torres

Background PID Reading : 0 ppm PID Reading: 0 ppm

Depth to Water (BTOC): 6.86'

Screen Interval: 7.66' - 17.66' BTOC

Sampling method: 2" Teflon™ Bailer

Sampling Equipment Decontamination method: Bailer was decontaminated as required by Work Plan.

Lab Analyses: (3) 40-ml vials VOC (SW 8240) preserved with HCL
(1) 500-ml Poly Metals (SW 6010/7000) preserved with HNO₃

QA/QC Samples: Duplicate - 021-010AMW-GW01
Equipment rinseate blank - 021-RB04
Analyses - same as 021-010MW-GW01

Weather: Cloudy, 60's

Comments:

| Time | Temperature (°F) | pH | Conductivity (μS/cm) | Clarity |
|-------|---------------------|------|-------------------------|-----------------|
| 11:15 | 61.4 | 6.76 | 783 | slightly cloudy |

DULUTH AIR NATIONAL GUARD BASE RFI
DAHA90-91-D-0002/01 (1308-101-139)

WELL SAMPLING LOG

Monitor Well No.: 021-010MW

Sample Start: (Date) 10/06/94 (Time) 14:25

Sample End: (Date) 10/06/94 (Time) 14:35

Sampled By: Kathryn Pritchett and Jeff Blunt

Background PID Reading : 0 ppm PID Reading: 0 ppm

Depth to Water (BTOC): 6.79'

Screen Interval: 7.66' - 17.66' BTOC

Sampling method: 2" Teflon™ Bailer

Sampling Equipment Decontamination method: Bailer was decontaminated as required by Work Plan.

Lab Analyses: (3) 40-ml vials VOC (SW 8240) preserved with HCL
021-010MW-GW02

QA/QC Samples: Duplicate sample was collected - 021-010AMW-GW02
Equipment rinseate blank sample of the 2" Teflon™ bailer - 021-RB08
Analyses same as 021-010MW-GW02

Weather: Cloudy, 50's, 40% chance of rain

Comments:

| Time | Temperature (°C) | pH | Conductivity (μS/cm) | Clarity |
|-------|---------------------|------|-------------------------|-----------------|
| 14:30 | 14.5 | 7.15 | 976 | slightly cloudy |

DULUTH AIR NATIONAL GUARD BASE RFI
DAHA90-91-D-0002/01 (1308-101-139)

WELL SAMPLING LOG

Monitor Well No.: 021-014MW

Sample Start: (Date) 7/22/94 (Time) 16:15

Sample End: (Date) 7/22/94 (Time) 16:25

Sampled By: Kathryn Pritchett, Joe Byrd, Jr., and Ruben Torres

Background PID Reading : 0 ppm PID Reading: 0 ppm

Depth to Water (BTOC): 4.87'

Screen Interval: 5.46' - 15.46' BTOC

Sampling method: 2" Teflon™ Bailer

Sampling Equipment Decontamination method: Bailer was decontaminated as required by Work Plan.

Lab Analyses: (3) 40-ml vials VOC (SW 8240) preserved with HCL
(1) 500-ml Poly Metals (SW 6010/7000) preserved with HCL

QA/QC Samples: Equipment rinseate blank - 021-RB04
Field blank - 021-FB01
Analyses same as 021-014MW-GW01

Weather: Cloudy, 60's

Comments:

| Time | Temperature (°F) | pH | Conductivity (μS/cm) | Clarity |
|-------|---------------------|----|-------------------------|---------|
| 15:30 | - | - | - | - |

DULUTH AIR NATIONAL GUARD BASE RFI
DAHA90-91-D-0002/01 (1308-101-139)

WELL SAMPLING LOG

Monitor Well No.: 021-014MW

Sample Start: (Date) 10/06/94 (Time) 11:55

Sample End: (Date) 10/06/94 (Time) 12:00

Sampled By: Kathryn Pritchett and Jeff Blunt

Background PID Reading : 0 ppm PID Reading: 0 ppm

Depth to Water (BTOC): 4.83'

Screen Interval: 5.46' - 15.46 BTOC

Sampling method: 2" Teflon™ Bailer

Sampling Equipment Decontamination method: Bailer was decontaminated as required by Work Plan.

Lab Analyses: (3) 40-ml vials VOC (SW 8240) preserved with HCL
021-014MW-GW02

QA/QC Samples: Equipment rinseate blank sample of the 2" Teflon™ bailer - 021-RB08
Analyses same as 021-014MW-GW02

Weather: Cloudy, 50's, 40% chance of rain

Comments:

| Time | Temperature (°C) | pH | Conductivity (μS/cm) | Clarity |
|-------|---------------------|------|-------------------------|-----------------|
| 11:55 | 13.0 | 6.71 | 1335 | Slightly cloudy |

DULUTH AIR NATIONAL GUARD BASE RFI
DAHA90-91-D-0002/01 (1308-101-139)

WELL SAMPLING LOG

Monitor Well No.: 021-026MW

Sample Start: (Date) 7/22/94 (Time) 14:45

Sample End: (Date) 7/22/94 (Time) 15:15

Sampled By: Kathryn Pritchett and Jeff Blunt

Background PID Reading : 0 ppm PID Reading: 0 ppm

Depth to Water (BTOC): 8.21'

Screen Interval: 9.73' - 19.73' BTOC

Sampling method: 2" Teflon™ Bailer

Sampling Equipment Decontamination method: Bailer was decontaminated as required by Work Plan.

Lab Analyses: (3) 40-ml vials VOC (SW 8240) preserved with HCL
(1) 500-ml Poly Metals (SW 6010/7000) preserved with HCL

QA/QC Samples: Equipment rinseate blank - 021-RB04
Analyses same as 021-026MW-GW01

Weather: Cloudy, 60's

Comments:

| Time | Temperature (°F) | pH | Conductivity (μS/cm) | Clarity |
|-------|---------------------|------|-------------------------|-----------------|
| 15:15 | 63.2 | 7.02 | 967 | slightly cloudy |

DULUTH AIR NATIONAL GUARD BASE RFI
DAHA90-91-D-0002/01 (1308-101-139)

WELL SAMPLING LOG

Monitor Well No.: 021-026MW

Sample Start: (Date) 10/06/94 (Time) 15:30

Sample End: (Date) 10/06/94 (Time) 15:40

Sampled By: Kathryn Pritchett and Jeff Blunt

Background PID Reading : 0 ppm PID Reading: 0 ppm

Depth to Water (BTOC): 7.65'

Screen Interval: 9.73' - 19.73' BTOC

Sampling method: 2" Teflon™ Bailer

Sampling Equipment Decontamination method: Bailer was decontaminated as required by Work Plan.

Lab Analyses: (3) 40-ml vials VOC (SW 8240) preserved with HCL

QA/QC Samples: Equipment rinseate blank - 021-RB08
(3) 40-ml vials VOC (SW 8240)

Weather: Cloudy, 50's, 40% chance of rain

Comments:

| Time | Temperature (°C) | pH | Conductivity (μS/cm) | Clarity |
|-------|---------------------|------|-------------------------|-----------------|
| 15:30 | 13.0 | 7.65 | 641 | Slightly cloudy |

APPENDIX G

FIELD GAS CHROMATOGRAPH ANALYSIS RESULTS

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SECTION G.1

INTRODUCTION

This appendix describes the field gas chromatography (GC) analysis results of the Addendum RCRA Facility Investigation for Sites No. 17, 18, and 21 at the Minnesota Air National Guard Base, Duluth, Minnesota. A PHOTOVAC 10S50 portable gas chromatograph was used for field analysis. A summary of the GC results are presented in Table G.1 followed by the raw data.

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Table G.1
GC Screening Results
148th FG, Duluth ANGB, Duluth, Minnesota

| Boring | Sample Interval (ft. BLS) | Sample Mass (grams) | Volatile Concentrations (ppb) | | | | Total BTEX (ppb) |
|------------------------|------------------------------|------------------------|-------------------------------|---------|--------------|---------|------------------------|
| | | | Benzene | Toluene | Ethylbenzene | Xylenes | |
| 100 PPB BTEX | STANDARD | NA | 100 | 100 | 300 | | 500 |
| 021-025BH | 1.5-2.0 | 10 | 82 | 6 | ND | ND | 88 |
| 021-025BH | 10.0-11.0 | 10 | ND | ND | ND | ND | ND |
| 021-025BH Reshot | 10.0-11.0 | 10 | ND | ND | ND | ND | ND |
| 021-025BH | 14.5-15.0 | 12 | 58 | ND | ND | ND | 58 |
| 021-023BH | 1.5-2.0 | 12 | 73 | ND | ND | ND | 73 |
| 1. PPM BTEX | STANDARD | NA | 1,000 | 1,000 | 1,000 | | 3,000 |
| 021-023BH | 10.5-11.0 | 12 | 1,110 | 118 | 61 | | 1,289 |
| 021-022BH Reshot | 6.0-6.5 | 10 | 395 | 287 | 220 | | 902 |
| 021-024BH | 16.5-17.0 | 12 | 1,070 | ND | ND | | 1,070 |
| 021-022BH | 11.5-12.0 | 10 | 142 | 10 | 11 | | 163 |
| 1 PPM BTEX | STANDARD | NA | 1,080 | 976 | 2,710 | | 4,766 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |
| 021-022BH | 14.5-15.0 | 10 | 240 | 12 | 12 | | 264 |
| 021-021BH Reshot | 14.5-15.0 | 12 | 105 | ND | 59 | | 164 |
| 021-023BH | 14.5-15.0 | 10 | 103 | ND | ND | | 103 |
| 021-024BH | 10.5-11.0 | 14 | 6,130 | 146 | 776 | | 7,052 |
| 1 PPM BTEX | STANDARD | NA | 1,000 | 1,000 | 3,000 | | 5,000 |
| AIR BLANK | NA | NA | ND | ND | ND | | ND |
| 021-024BH ^a | 10.5-11.0 | 14 | 1,080 | 86 | 382 | | 1,548 |
| 1 PPM BTEX | STANDARD | NA | 1,130 | 1,110 | 3,400 | | 5,640 |

Table G.1 (Continued)
GC Screening Results
148th FG, Duluth ANGB, Duluth, Minnesota

| Boring | Sample Interval (ft. BLS) | Sample Mass (grams) | Volatile Concentrations (ppb) | | | | Total BTEX (ppb) |
|--------------|------------------------------|------------------------|-------------------------------|---------|--------------|---------|------------------------|
| | | | Benzene | Toluene | Ethylbenzene | Xylenes | |
| 100 PPB BTEX | STANDARD | NA | 100 | 100 | 100 | 200 | 500 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |
| 021-024BH | 2.0-2.5 | 10 | ND | ND | ND | ND | ND |
| 021-021BH | 2.0-2.5 | 10 | ND | ND | ND | ND | ND |
| 021-020BH | 10.5-11.0 | 10 | ND | ND | ND | ND | ND |
| 021-021BH | 6.5-7.0 | 10 | ND | ND | ND | ND | ND |
| 021-024BH | 6.5-7.0 | 10 | ND | ND | ND | ND | ND |
| 100 PPB BTEX | STANDARD | NA | 100 | 100 | 100 | 200 | 500 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |
| 021-024BH | 6.5-7.0 | 10 | ND | ND | ND | ND | ND |
| 021-021BH | 11.5-12.0 | 10 | 79 | 10 | ND | ND | 89 |
| 021-022BH | 1.0-1.5 | 10 | ND | ND | ND | ND | ND |
| 021-020BH | 6.5-7.0 | 12 | 100 | ND | ND | ND | 100 |
| 021-020BH | 1.5-2.0 | 12 | ND | ND | ND | ND | ND |
| 100 PPB BTEX | STANDARD | NA | 100 | 97 | 105 | 203 | 505 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |
| 021-018BH | 2.0-2.5 | 10 | ND | ND | ND | ND | ND |
| 021-018BH | 13.5-14.0 | 12 | ND | ND | ND | ND | ND |
| 021-018BH | 9.5-10.0 | 12 | ND | ND | ND | ND | ND |
| 021-019BH | 14.5-15.0 | 10 | 7 | ND | ND | ND | 7 |
| 021-019BH | 1.5-2.0 | 12 | ND | ND | ND | ND | ND |

Table G.1 (Continued)
GC Screening Results
148th FG, Duluth ANGB, Duluth, Minnesota

| Boring | Sample Interval (ft. BLS) | Sample Mass (grams) | Volatile Concentrations (ppb) | | | | Total BTEX (ppb) |
|--------------|------------------------------|------------------------|-------------------------------|---------|--------------|---------|------------------------|
| | | | Benzene | Toluene | Ethylbenzene | Xylenes | |
| 100 PPB BTEX | STANDARD | NA | 100 | 84 | 83 | 187 | 454 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |
| 021-016BH | 2.0-2.5 | 12 | ND | ND | ND | ND | ND |
| 021-016BH | 6.5-7.0 | 10 | ND | ND | ND | ND | ND |
| 021-016BH | 10.5-11.0 | 10 | ND | ND | ND | ND | ND |
| 021-019BH | 6.5-7.0 | 10 | ND | ND | ND | ND | ND |
| 021-019BH | 10.5-11.0 | 12 | 16 | ND | ND | ND | 16 |
| 100 PPB BTEX | STANDARD | NA | 100 | 100 | 100 | 200 | 500 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |
| 021-015BH | 1.5-2.0 | 10 | ND | ND | ND | ND | ND |
| 021-015BH | 6.5-7.0 | 10 | ND | ND | ND | ND | ND |
| 021-015BH | 10.5-11.0 | 12 | ND | ND | ND | ND | ND |
| 021-015BH | 13.0-13.5 | 10 | ND | ND | ND | ND | ND |
| 100 PPB BTEX | STANDARD | NA | 100 | 93 | 81 | 157 | 431 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |
| 100 PPB BTEX | STANDARD | NA | 100 | 100 | 100 | 200 | 500 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |
| 021-017BH | 2.0-2.5 | 12 | ND | ND | ND | ND | ND |
| 021-017BH | 5.5-6.0 | 10 | ND | ND | ND | ND | ND |
| 021-017BH | 10.5-11.0 | 12 | ND | ND | ND | ND | ND |
| 021-017BH | 14.5-15.0 | 12 | ND | ND | ND | ND | ND |

Table G.1 (Continued)
GC Screening Results
148th FG, Duluth ANGB, Duluth, Minnesota

| Boring | Sample Interval (ft. BLS) | Sample Mass (grams) | Volatile Concentrations (ppb) | | | | Total BTEX (ppb) |
|--------------|------------------------------|------------------------|-------------------------------|---------|--------------|---------|------------------------|
| | | | Benzene | Toluene | Ethylbenzene | Xylenes | |
| 100 PPB BTEX | NA | NA | 100 | 107 | 113 | 217 | 537 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |
| 021-026MW | 2.0-2.5 | 10 | ND | ND | ND | ND | ND |
| 021-026MW | 8.5-9.0 | 10 | ND | ND | ND | ND | ND |
| 021-026MW | 11.0-11.5 | 12 | ND | ND | ND | ND | ND |
| 021-026MW | 16.5-17.0 | 10 | ND | ND | ND | ND | ND |
| 100 PPB BTEX | STANDARD | NA | 100 | 101 | 105 | 194 | 500 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |
| 100 PPB BTEX | STANDARD | NA | 100 | 100 | 100 | 200 | 500 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |
| 017-016BH | 1.5-2.0 | 12 | ND | ND | ND | ND | ND |
| 017-016BH | 5.5-6.0 | 12 | ND | ND | ND | ND | ND |
| 017-016BH | 9.5-10.0 | 16 | ND | ND | ND | ND | ND |
| 017-015BH | 1.0-1.5 | 12 | ND | ND | ND | ND | ND |
| 017-015BH | 5.5-6.0 | 12 | ND | ND | ND | ND | ND |
| 100 PPB BTEX | STANDARD | NA | 100 | 100 | 100 | 200 | 500 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |
| 017-015BH | 5.5-6.0 | 12 | ND | ND | ND | ND | ND |
| 017-015BH | 9.0-9.5 | 12 | ND | ND | ND | ND | ND |
| 017-013BH | 5.5-6.0 | 10 | ND | ND | ND | ND | ND |
| 017-013BH | 2.0-2.5 | 12 | ND | ND | ND | ND | ND |

Table G.1 (Continued)
GC Screening Results
148th FG, Duluth ANGB, Duluth, Minnesota

| Boring | Sample Interval (ft. BLS) | Sample Mass (grams) | Volatile Concentrations (ppb) | | | | Total BTEX (ppb) |
|--------------|------------------------------|------------------------|-------------------------------|---------|--------------|---------|------------------------|
| | | | Benzene | Toluene | Ethylbenzene | Xylenes | |
| 017-013BH | 9.5-10.0 | 12 | ND | ND | ND | ND | ND |
| 100 PPB BTEX | STANDARD | NA | 100 | 93 | 84 | 170 | 447 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |
| 100 PPB BTEX | STANDARD | NA | 100 | 100 | 100 | 200 | 500 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |
| 017-014BH | 2.0-2.5 | 12 | ND | 21 | ND | ND | 21 |
| 017-014BH | 4.5-5.0 | 10 | ND | ND | ND | ND | ND |
| 017-014BH | 9.5-10.0 | 12 | ND | 22 | ND | ND | 22 |
| 017-012BH | 2.0-2.5 | 12 | ND | 21 | ND | ND | 21 |
| 017-012BH | 5.5-6.0 | 12 | ND | 20 | ND | ND | 20 |
| 100 PPB BTEX | STANDARD | NA | 100 | 92 | 95 | 180 | 467 |
| AIR BLANK | NA | NA | ND | 26 | ND | ND | 26 |
| 017-012BH | 9.5-10.0 | 14 | ND | 25 | ND | ND | 25 |
| 017-011BH | 2.0-2.5 | 10 | ND | 25 | ND | ND | 25 |
| 017-011BH | 5.5-6.0 | 10 | ND | ND | ND | ND | ND |
| 017-011BH | 9.5-10.0 | 10 | ND | ND | ND | ND | ND |
| 100 PPB BTEX | STANDARD | NA | 100 | 100 | 100 | 200 | 500 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |
| 017-010BH | 4.5-5.0 | 12 | ND | ND | ND | ND | ND |
| 017-010BH | 9.5-10.0 | 12 | ND | ND | ND | ND | ND |
| 017-017BH | 1.5-2.0 | 10 | ND | ND | ND | ND | ND |

Table G.1 (Continued)
GC Screening Results
148th FG, Duluth ANGB, Duluth, Minnesota

| Boring | Sample Interval (ft. BLS) | Sample Mass (grams) | Volatile Concentrations (ppb) | | | | Total BTEX (ppb) |
|--------------|------------------------------|------------------------|-------------------------------|---------|--------------|---------|------------------------|
| | | | Benzene | Toluene | Ethylbenzene | Xylenes | |
| 017-017BH | 5.5-6.0 | 10 | ND | ND | ND | ND | ND |
| 017-017BH | 9.5-10.0 | 10 | ND | 19 | ND | ND | 19 |
| 100 PPB BTEX | STANDARD | NA | 100 | 105 | 90 | 177 | 472 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |
| 017-018BH | 2.0-2.5 | 10 | ND | ND | ND | ND | ND |
| 017-018BH | 4.5-5.0 | 10 | ND | ND | ND | ND | ND |
| 017-018BH | 9.5-10.0 | 12 | ND | ND | ND | ND | ND |
| 100 PPB BTEX | STANDARD | NA | 100 | 100 | 100 | 200 | 500 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |
| 017-019BH | 1.5-2.0 | 12 | ND | ND | ND | ND | ND |
| 017-019BH | 5.0-6.0 | 10 | ND | ND | ND | ND | ND |
| 017-019BH | 9.5-10.0 | 10 | ND | ND | ND | ND | ND |
| 017-020BH | 2.0-2.5 | 12 | ND | ND | ND | ND | ND |
| 017-020BH | 5.5-6.0 | 10 | ND | ND | ND | ND | ND |
| 100 PPB BTEX | STANDARD | NA | 100 | 101 | 92 | 180 | 473 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |
| 017-020BH | 9.5-10.0 | 12 | ND | ND | ND | ND | ND |
| 100 PPB BTEX | STANDARD | NA | 100 | 99 | 87 | 169 | 455 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |
| 100 PPB BTEX | STANDARD | NA | 100 | 100 | 100 | 200 | 500 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |

Table G.1 (Continued)
GC Screening Results
148th FG, Duluth ANGB, Duluth, Minnesota

| Boring | Sample Interval (ft. BLS) | Sample Mass (grams) | Volatile Concentrations (ppb) | | | | Total BTEX (ppb) |
|--------------|------------------------------|------------------------|-------------------------------|---------|--------------|---------|------------------------|
| | | | Benzene | Toluene | Ethylbenzene | Xylenes | |
| 021-009MW | GROUNDWATER | 10 ml | ND | ND | ND | ND | ND |
| 021-010MW | GROUNDWATER | 10 ml | ND | ND | ND | ND | ND |
| 021-014MW | GROUNDWATER | 10 ml | ND | ND | ND | ND | ND |
| 021-026MW | GROUNDWATER | 10 ml | ND | ND | ND | ND | ND |
| 018-006BH | 2.5 | 10 | ND | ND | ND | ND | ND |
| 100 PPB BTEX | STANDARD | NA | 100 | 100 | 100 | 200 | 500 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |
| 018-006BH | 1.7 | 10 | ND | ND | ND | ND | ND |
| 017-010BH | 1.5-2.5 | 10 | ND | ND | ND | ND | ND |
| 018-007BH | 2.5 | 10 | ND | ND | ND | ND | ND |
| 100 PPB BTEX | STANDARD | NA | 100 | 100 | 100 | 200 | 500 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |
| 021-004SD | SURFACE SEDIMENT | 10 | ND | ND | ND | ND | ND |
| 021-005SD | SURFACE SEDIMENT | 10 | ND | ND | ND | ND | ND |
| 021-006SD | SURFACE SEDIMENT | 10 | ND | ND | ND | ND | ND |
| 021-007SD | SURFACE SEDIMENT | 12 | ND | ND | ND | ND | ND |
| 018-007BH | 0.8-1.3 | 10 | ND | 7 | 215 | 1,224 | 1,446 |
| 1 PPM BTEX | STANDARD | NA | 1,000 | 1,000 | 1,000 | 2,000 | 5,000 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |
| 018-007BH | 0.8-1.3 | 10 | ND | ND | 66 | ND | 66 |
| 018-007BH | 2.5 | 10 | ND | 3,550 | 3,220 | 4,090 | 10,860 |

Table G.1 (Concluded)
GC Screening Results-Soil
148th FG, Duluth ANGB, Duluth, Minnesota

| Boring | Sample Interval (ft. BLS) | Sample Mass (grams) | Volatile Concentrations (ppb) | | | | Total BTEX (ppb) |
|------------------------|------------------------------|------------------------|-------------------------------|---------|--------------|---------|------------------------|
| | | | Benzene | Toluene | Ethylbenzene | Xylenes | |
| 1 PPM BTEX | STANDARD | NA | 1,000 | 999 | 951 | 1,910 | 4,860 |
| 018-007BH ^b | 2.5 | 10 | 24 | 616 | 768 | 1,020 | 2,428 |
| 018-007BH | 0.8-1.3 | 10 | 66 | ND | ND | ND | 66 |
| 018-007BH ^c | 2.5 | 10 | 12 | 239 | 331 | 432 | 1,010 |
| 100 PPB BTEX | STANDARD | NA | 100 | 100 | 100 | 200 | 500 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |
| 018-007BH | 0.8-1.3 | 10 | ND | 10 | 295 | 1,590 | 1,900 |
| 018-007BH ^d | 0.8-1.3 | 10 | ND | ND | 166 | 921 | 1,087 |
| 100 PPB BTEX | STANDARD | NA | 100 | 96 | 94 | 283 | 573 |
| AIR BLANK | NA | NA | ND | ND | ND | ND | ND |

^a - 4X dilution injection.
^b - 5X dilution injection.
^c - 10X dilution injection.
^d - 2X dilution injection.
 PPM - parts per million.
 GROUNDWATER - 10 ml groundwater sample.
 SURFACE SEDIMENT - surface sediment sample.
 BH - Borehole.
 MW - Monitoring well.
 NA - Not applicable.
 ND - Non detect.
 Reshot - 2nd injection of an interval's headspace.
 PPB/ppb - Parts per billion.
 BTEX - Benzene, Toluene, Ethylbenzene, and Xylenes.
 ft. BLS - feet below land surface.
 STANDARD - BTEX calibration standard.

FIELD GC RESULTS

Duluth Air National Guard Base, Duluth, Minnesota

| Boring | Sample Interval (ft. BLS) | Sample Mass (grams) | Concentrations (ppb) | | | | | |
|--------------|---------------------------|---------------------|----------------------|---------|--------------|------------|----------|------------|
| | | | Benzene | Toluene | Ethylbenzene | m,p-Xylene | o-Xylene | Total BTEX |
| 100 PPB BTEX | -- | -- | 100 | 100 | 100 | 200 | 100 | 600 |
| 1 PPM BTEX | -- | -- | 1,000 | 1,000 | 1,000 | 2,000 | 1,000 | 6,000 |
| 10 PPM BTEX | -- | -- | 10,000 | 10,000 | 10,000 | 20,000 | 10,000 | 60,000 |
| AIR BLANK | -- | -- | 1 | 1 | 6 | 9 | ND | 17 |
| 021-026BH | 8'-10' | 10 | 1 | 3 | ND | ND | ND | 4 |
| 021-026BH | 4'-6' | 10 | 1 | 2 | 4 | 5 | ND | 12 |
| 100 PPB BTEX | -- | -- | 106 | 103 | 98 | 188 | 68 | 563 |
| 100 PPB BTEX | -- | -- | 100 | 100 | 100 | 200 | 100 | 600 |
| 1 PPM BTEX | -- | -- | 1,000 | 1,000 | 1,000 | 2,000 | 1,000 | 6,000 |
| 10 PPM BTEX | -- | -- | 10,000 | 10,000 | 10,000 | 20,000 | 10,000 | 60,000 |
| AIR BLANK | -- | -- | 1 | 12 | ND | 83 | 20 | 116 |
| 021-027BH | 4'-6' | 10 | 1 | 3 | ND | 31 | 11 | 56 |
| 021-027BH | 8'-10' | 10 | ND | 3 | 3 | 8 | 4 | 18 |
| AIR BLANK | -- | -- | 2 | 1 | ND | ND | ND | 3 |
| 021-028BH | 0.5'-2.5' | 10 | ND | 2 | 2 | 3 | 2 | 9 |
| 021-028BH | 8'-10' | 10 | ND | 1 | 2 | 3 | 3 | 9 |
| 100 PPB BTEX | -- | -- | 97 | 70 | 62 | 119 | 51 | 399 |
| 100 PPB BTEX | -- | -- | 96 | 92 | 87 | 178 | 93 | 546 |
| RECAL | -- | -- | 100 | 100 | 100 | 200 | 100 | 600 |
| AIR BLANK | -- | -- | 1 | ND | ND | ND | ND | 1 |
| 017-024BH | 0.5'-2.5' | 10 | 2 | ND | 13 | ND | 22 | 37 |
| 017-024BH | 4'-6' | 10 | 4 | 1 | ND | 44 | ND | 49 |
| 017-025BH | 0.5'-2.5' | 10 | 6 | 1 | 4 | 9 | ND | 20 |
| 017-024BH | 8'-10' | 10 | 7 | ND | 11 | ND | 3 | 21 |
| 017-025BH | 4'-6' | 10 | 6 | 1 | 4 | ND | ND | 11 |
| 100 PPB BTEX | -- | -- | 96 | 81 | 64 | 115 | 108 | 464 |
| RECAL | -- | -- | 100 | 100 | 100 | 200 | 100 | 600 |

| | | | | | | | | |
|--------------|-----------|----|----|----|----|-----|----|-----|
| AIR BLANK | -- | -- | 5 | ND | 4 | ND | 4 | 13 |
| 017-022BH | 0.5'-2.5' | 10 | 5 | 3 | 7 | 12 | 1 | 28 |
| 017-023BH | 0.5'-2.5' | 10 | 3 | 3 | 7 | 9 | ND | 22 |
| 017-023BH | 4'-6' | 10 | 10 | 3 | 37 | 98 | ND | 148 |
| 017-018BH | 0.5'-2.5' | 10 | 13 | 3 | 4 | ND | ND | 20 |
| 017-028BH | 4'-6' | 10 | 5 | ND | 8 | ND | ND | 13 |
| 100 PPB BTEX | -- | -- | 2 | 91 | 96 | 138 | 31 | 358 |

BH - Borehole.

ml - milliliters.

PPB/ppb - Parts per billion.

ND - Non detect.

BTEX - Benzene, Toluene, Ethylbenzene, and Xylenes.

RECAL - Recalibration.

PPM - Parts per million.

ft. BLS - Feet Below Land Surface.

①

GC OVEN TEMP: 40°C
ANALYSIS TIME: 400 s
WINDOW: ±10%
MINIMUM AREA: _____

DATE: 12 July 94

FIELD GC DATA SUMMARY

SITE: DULUTH ANG B Site 21
 GAIN: 100 JB 100 50 2nd 5
 CARRIER GAS FLOW: 10.9 μ l/min

GC OVEN TEMP: 40°C
 ANALYSIS TIME: 400 sec
 WINDOW: $\pm 10\%$
 MINIMUM AREA: 50 mVs

| Boring | Sample Interval (ft. BLS) | Sample Mass (grams) | Sample Dilution Factor | Concentrations (ppb) | | | | | | Additional Analytes | | |
|-------------|---------------------------|---------------------|------------------------|----------------------|------------------|--------------|------------|----------|------------|---------------------|--|--|
| | | | | Benzene | Toluene | Ethylbenzene | m,p-Xylene | o-Xylene | Total BTEX | | | |
| 100 ppb std | | ABORT | RUN | GAIN | 15 | 200 | HIGH | | | | | |
| | | Reset | GAIN | 20 | 10 | | | | | | | |
| DRY RUN | | | | | | | | | | | | |
| 100 ppb std | | ABORT | RUN | GAIN | 15 | 200 | HIGH | | | | | |
| | | Reset | GAIN | 20 | 2 | | | | | | | |
| DRY RUN | 20 | Purge | | | | | | | | | | |
| 100 ppb STD | | Reset | GAIN | 20 | 5 | | | | | | | |
| 100 ppb STD | | no | Good | PEAKS | | | | | | | | |
| 100 ppb STD | | " | " | " | " | | | | | | | |
| 100 ppb STD | | looks | better | | | | | | | | | |
| 100 ppb std | | " | " | INCREASE | ANALYSIS | Time | 20 | 450s | | | | |
| 100 ppb std | | " | " | " | " | " | " | 1500s | | | | |
| | | INCREASE | AIR FLOW | 20 | 12.5 μ l/min | | | | | | | |
| | | Decrease | AT | 20 | 400s | | | | | | | |
| 100 ppb std | | A | GOOD | PICTURE | INCREASE | AT | 20 | 430 | | | | |
| 100 ppb std | | Finally. | Set | LIBRARY | | | | | | | | |
| 021-025 BH | 1.5-2.0 | 10g | - | 82 | 6 | ND | ND | ND | 88 | | | |
| 021-025 BH | 10.0-11.0 | 10g | - | ND | ND | ND | ND | ND | ND | | | |
| | 10.0-11.0 | Reshoot | - | ND | ND | ND | ND | ND | ND | | | |
| 021-025 BH | 14.5-15.0 | 12g | - | 58 | ND | ND | ND | ND | 58 | | | |
| 021-023 BH | 1.5-2.0 | 12g | - | 73 | ND | ND | ND | ND | 73 | | | |
| 100 ppb std | check | | - | 176 | 89 | 277 | | | 542 | Recalibrate | | |
| 100 ppb std | | | - | Reset | GAIN | 20 | | | | | | |
| 100 ppb std | | | - | Reset | Library | all is good | | | | | | |

OPERATOR: Jon Byrd Jr

DATE: 13 July 1994

FIELD GC DATA SUMMARY

SITE: DULUTH ANGB, Site 21
GAIN: 10, 2 for 1PPM
CARRIER GAS FLOW: 13.8 μ l/min

GC OVEN TEMP: 40°C
ANALYSIS TIME: 430 sec
WINDOW: ±10%
MINIMUM AREA: 50 ~~mV~~ 53 200 mV

| Boring | Sample Interval (ft. BLS) | Sample Mass (grams) | Sample Dilution Factor | Concentrations (ppb) | | | | | | Additional Analytes | | |
|--------------------|---------------------------|---------------------|------------------------|--|---------|---------------------|------------|----------|------------|---------------------|--|--|
| | | | | Benzene | Toluene | Ethyl-benzene | m,p-Xylene | o-Xylene | Total BTEX | | | |
| | | | | | | | | | | | | |
| AIR BLANK | | | — | 38 | ND | ND | ND | ND | 38 | | | |
| 20 ppb std | | | — | 128 | 46 | 274 | ND | ND | 448 | Reshoot | | |
| 20 ppb std | | | — | 91 | 91 | 272 | | | 454 | | | |
| 1-023BH | 10.5-11.0 | 12g | — | ND | 290 | 98 | ND | ND | 388 | | | |
| | HAD | SPIKES | off | CHART. Reset Gain to 5 and Area to 100 | | | | | | | | |
| 0 ppb std | | | — | 72 | 80 | 274 | ND | ND | 426 | | | |
| | | | | ERASE LIBRARY AND RECALIBRATE | | | | | | | | |
| 5 ppb std | AIR BLANK | | — | 22 | ND | ND | ND | ND | 22 | | | |
| 21-023BH | 10.5-11.0 | 12g | — | 647 | 333 | 137 | ND | ND | 1,120 | Chang Standard | | |
| PPM | AIR BLANK | | | | | | | | | | | |
| PPM | | | | looks great Benzene @ 7.9 V _s = 50 mV | | | | | | | | |
| 1-023BH | 10.5-11.0 | 12g | — | 1,110 | 118 | 61 | ND | ND | 1,289 | | | |
| 21-022BH | 6.0-6.5 | 10g | — | 315 | | Printer not working | | | | | | |
| Reshoot | | | — | 395 | 287 | 220 | ND | ND | 902 | | | |
| 21-024BH | 16.5-17.0 | 12g | — | 1,070 | ND | ND | ND | ND | 1,070 | | | |
| 1-022BH | 11.5-12.0 | 10g | — | 142 | 10 | 12 | ND | ND | 163 | | | |
| 1-022BH | 11.5-12.0 | 10g | — | 1,080 | 976 | 2,710 | ND | ND | 4,766 | | | |
| AIR BLANK | | | — | ND | ND | ND | ND | ND | ND | | | |
| 1-022BH | 14.5-15.0 | 10g | — | 240 | 12 | 12 | ND | ND | 264 | | | |
| 1-021BH | 14.5-15.0 | 12g | — | Printer Mal Function | | | | | | | | |
| Reshoot | | | — | 105 | ND | 59 | ND | ND | 164 | | | |
| 21-023BH | 14.5-15.0 | 10g | — | 103 | ND | ND | ND | ND | 103 | | | |
| 1-024BH | 10.5-11.0 | 14g | — | 6,130 | 146 | 776 | ND | ND | 7,052 | | | |
| 1 PPM STD | | | — | 845 | 674 | 2,010 | ND | ND | 3,529 | | | |

OPERATOR: Jan B. Galt

DATE: 13 July 94

2

GC OVEN TEMP: 40°C
ANALYSIS TIME: 430 sec
WINDOW: 10%
MINIMUM AREA: 41, 42:20 mV

DATE: 13 July 74

FIELD GC DATA SUMMARY

SITE: Duluth ANGB, Site 21
 GAIN: 10
 CARRIER GAS FLOW: 11 μ l/min

GC OVEN TEMP: 40°C
 ANALYSIS TIME: 430 sec
 WINDOW: $\pm 10\%$
 MINIMUM AREA: 50 mVs

| Boring | Sample Interval (ft. BLS) | Sample Mass (grams) | Sample Dilution Factor | Concentrations (ppb) | | | | | | Additional Analytes | | |
|-----------|---------------------------|---------------------|----------------------------|----------------------|---------|--------------|------------|----------|------------|---------------------|--|--|
| | | | | Benzene | Toluene | Ethylbenzene | m,p-Xylene | o-Xylene | Total BTEX | | | |
| | | | | | | | | | | | | |
| 50 ppb | | Mixed | Shot | | | | | | | | | |
| by run | | | | | | | | | | | | |
| 50 ppb | | GAIN is TOO HIGH | Reset to 5. | | | | | | | | | |
| | | INCREASE | AIR Flow to 12 μ l/min | | | | | | | | | |
| 50 ppb | | looks good. | Set AREA to 50 mVs | | | | | | | | | |
| IR | | | — | ND | ND | ND | ND | ND | ND | | | |
| 21-024 BH | 2.0-2.5 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 1-021 BH | 2.0-2.5 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 1-020 BH | 10.5-11.0 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 1-021 BH | 6.5-7.0 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 1-024 BH | 6.5-7.0 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| ppb std | | | — | 88 | 86 | 31 | 92 | ND | 297 | | | |
| | RECAL | | | 100 | 98 | 35 | 105 | ND | 338 | Recalibrate needed | | |
| ppb std | | | | | | | | | | | | |
| IR | | | — | ND | ND | ND | ND | ND | ND | | | |
| 1-024 BH | 6.5-7.0 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 1-021 BH | 11.5-12.0 | 10g | — | 79 | 10 | ND | ND | ND | 89 | | | |
| 022 BH | 1.0-1.5 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 020 BH | 6.5-7.0 | 12g | — | 100 | ND | ND | ND | ND | 100 | | | |
| 1-020 BH | 1.5-2.0 | 12g | — | ND | ND | ND | ND | ND | ND | | | |
| ppb | — | — | — | 89 | 87 | 94 | 181 | ND | 451 | | | |
| | CAL | | | 100 | 97 | 105 | 203 | ND | 505 | | | |
| R BLANK | — | — | — | ND | ND | ND | ND | ND | ND | | | |

RATOR: for 3 yr

DATE: 14 July 97

FIELD GC DATA SUMMARY

SITE: Duluth ANGB, Site 21

GAIN: 5

CARRIER GAS FLOW: 12 μ l/min

GC OVEN TEMP: 40°C

ANALYSIS TIME: 430 sec

WINDOW: $\pm 10\%$

MINIMUM AREA: 50 mV

| Boring | Sample Interval (ft. BLS) | Sample Mass (grams) | Sample Dilution Factor | Concentrations (ppb) | | | | | | Additional Analytes | | |
|-----------------------|---------------------------|---------------------|------------------------|----------------------|---------|--------------|------------|----------|------------|---------------------|--|--|
| | | | | Benzene | Toluene | Ethylbenzene | m,p-Xylene | o-Xylene | Total BTEX | | | |
| | | | | | | | | | | | | |
| 021-018BH | 2.0-2.5 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 021-018BH | 13.5-14.0 | 12g | — | ND | ND | ND | ND | ND | ND | | | |
| 021-018BH | 9.5-10.0 | 12g | — | ND | ND | ND | ND | ND | ND | | | |
| 021-019BH | 14.5-15 | 10g | — | 7 | ND | ND | ND | ND | 7 | | | |
| 021-019BH | 1.5-2.0 | 12g | — | ND | ND | ND | ND | ND | ND | | | |
| 100 ppb | STD | — | — | 80 | 67 | 66 | 109 | ND | 322 | | | |
| | CAL | | | 100 | 84 | 83 | 187 | ND | 454 | | | |
| AIR BLANK | | | | ND | ND | ND | ND | ND | ND | | | |
| 021-016 ^{BH} | 2.0-2.5 | 12g | — | ND | ND | ND | ND | ND | ND | | | |
| 021-016BH | 6.5-7.0 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 021-016BH | 10.5-11.0 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 021-019BH | 6.5-7.0 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 021-019BH | 10.5-11.0 | 12g | — | 16 | ND | ND | ND | ND | 16 | | | |
| 100 ppb | | | | 127 | 106 | 102 | 164 | ND | 499 | | | |
| | CAL | | | 100 | 83 | 80 | 128 | ND | 391 | | | |
| 100 ppb | Recalibrate | | | — | — | — | — | — | — | | | |
| AIR BLANK | | | | ND | ND | ND | ND | ND | ND | | | |
| 021-015BH | 1.5-2.0 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 021-015BH | 6.5-7.0 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 021-015BH | 10.5-11.0 | 12g | — | ND | ND | ND | ND | ND | ND | | | |
| 021-015BH | 13.0-13.5 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 100 ppb | | | | 85 | 79 | 68 | 133 | ND | 365 | | | |
| | CAL | | | 100 | 93 | 81 | 157 | ND | 431 | | | |
| AIR BLANK | | | | ND | ND | ND | ND | ND | ND | | | |

OPERATOR: Jan Byrd Jr

DATE: 14 July 94

FIELD GC DATA SUMMARY

SITE: DULUTH ANGB
GAIN: 5
CARRIER GAS FLOW: 12.3 μ l/min

GC OVEN TEMP: 40°C
ANALYSIS TIME: 430 sec
WINDOW: ±10%
MINIMUM AREA: 50 mV

[illegible]

REPORTOR: Jan Byrd Jr

DATE: 15 July 1994

FIELD GC DATA SUMMARY

SITE: Duluth ANGR, Site 17
 GAIN: 5, 10
 CARRIER GAS FLOW: 13 μ l/min

GC OVEN TEMP: 40°C
 ANALYSIS TIME: 430 sec
 WINDOW: $\pm 10\%$
 MINIMUM AREA: 100 mV

| Boring | Sample Interval (ft. BLS) | Sample Mass (grams) | Sample Dilution Factor | Concentrations (ppb) | | | | | | Additional Analytes | | |
|-------------|---------------------------|-----------------------------|------------------------|----------------------|---|--------------|------------|----------|------------|---------------------|--|--|
| | | | | Benzene | Toluene | Ethylbenzene | m,p-Xylene | o-Xylene | Total BTEX | | | |
| 100 ppb STD | | | | | | | | | | | | |
| | | Increase gain to 10 | | | | | | | | | | |
| 100 ppb STD | | | | 2.2 V _s | \Rightarrow 100 mV _s setting | | | | | | | |
| AIR BLANK | | | | ND | ND | ND | ND | ND | ND | | | |
| METHANOL | | | | ND | ND | ND | ND | ND | ND | | | |
| 017-016BH | 1.5-2.0 | 12g | — | ND | ND | ND | ND | ND | ND | | | |
| 017-016BH | 5.5-6.0 | 12g | — | ND | ND | ND | ND | ND | ND | | | |
| 017-016BH | 9.5-10.0 | 16g | — | ND | ND | ND | ND | ND | ND | | | |
| 017-015BH | 1.0-1.5 | 12g | — | ND | ND | ND | ND | ND | ND | | | |
| 017-015BH | 5.5-6.0 | 12g | — | ND | ND | ND | ND | ND | ND | | | |
| 100 ppb STD | | | | 90 | 86 | 80 | 217 | ND | 473 | | | |
| CALIBRATE | | | | 100 | 95 | 89 | 242 | ND | 526 | | | |
| | | ERASE LIBRARY. Recalibrate. | | | | | | | | | | |
| 100 ppb STD | | | | 2.1 V _s | \Rightarrow 100 mV _s setting | | | | | | | |
| AIR BLANK | | | | ND | ND | ND | ND | ND | ND | | | |
| 017-015BH | 5.5-6.0 | 12g | — | ND | ND | ND | ND | ND | ND | | | |
| 017-015BH | 9.0-9.5 | 12g | — | ND | ND | ND | ND | ND | ND | | | |
| 017-013BH | 5.5-6.0 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 017-013BH | 2.0-2.5 | 12g | — | ND | ND | ND | ND | ND | ND | | | |
| 017-013BH | 9.5-10.0 | 12g | — | ABORTED | | | | | RUN | | | |
| 017-013BH | 9.5-10.0 | 12g | — | ND | ND | ND | ND | ND | ND | | | |
| 100 ppb STD | | | | 80 | 74 | 67 | 136 | ND | 357 | | | |
| CALIBRATE | | | | 100 | 93 | 84 | 170 | ND | 447 | | | |
| AIR | | | | ND | ND | ND | ND | ND | ND | | | |

OPERATOR: Joe Byrd, Jr

DATE: 18 July 1994

FIELD GC DATA SUMMARY

SITE: DULUTH ANGB, Site 17

GAIN: 10

CARRIER GAS FLOW: 13 μ l/min

GC OVEN TEMP: 40°C

ANALYSIS TIME: 450 sec

WINDOW: $\pm 10\%$

MINIMUM AREA: 100 mVs

| Boring | Sample Interval (ft. BLS) | Sample Mass (grams) | Sample Dilution Factor | Concentrations (ppb) | | | | | | Additional Analytes | | |
|------------|---------------------------|---------------------|------------------------|--|---------------|-------------------|------------|----------|------------|---------------------|--|--|
| | | | | Benzene | Toluene | Ethylbenzene | m,p-Xylene | o-Xylene | Total BTEX | | | |
| by run | | | | | | | | | | | | |
| 10 ppb STD | | | | Gain was not properly set. Reset to 10 | | | | | | | | |
| 10 ppb STD | | | | 1.9 Vs | \Rightarrow | 100 mVs min. area | | | | | | |
| 12 BLANK | | | | ND | ND | ND | ND | ND | ND | | | |
| 7-014BH | 2.0-2.5 | 12g | — | ND | 21 | ND | ND | ND | 21 | | | |
| 7-014BH | 4.5-5.0 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 7-014BH | 9.5-10.0 | 12g | — | ND | 22 | ND | ND | ND | 22 | | | |
| 7-012BH | 2.0-2.5 | 12g | — | ND | 21 | ND | ND | ND | 21 | | | |
| 7-012BH | 5.5-6.0 | 12g | — | ND | 20 | ND | ND | ND | 20 | | | |
| 10 ppb STD | | | | 82 | 75 | 77 | 147 | ND | 381 | | | |
| 1 Liberate | | | | 100 | 92 | 95 | 180 | ND | 467 | | | |
| 12 BLANK | | | | ND | 26 | ND | ND | ND | 26 | | | |
| 7-012 BH | 9.5-10.0 | 14g | — | ND | 25 | ND | ND | ND | 25 | | | |
| 7-011 BH | 2.0-2.5 | 10g | — | ND | 25 | ND | ND | ND | 25 | | | |
| 7-011 BH | 5.5-6.0 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 7-011 BH | 9.5-10.0 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 10 ppb STD | | | | 117 | 108 | 97 | 184 | 107 | 613 | | | |
| 1 Liberate | | | | 100 | 93 | 83 | 158 | 92 | 526 | | | |
| 10 ppb STD | | | | 2.5 Vs | \Rightarrow | 100 mVs | | | | | | |
| 12 BLANK | | | | ND | ND | ND | ND | ND | ND | | | |
| 7-010 BH | 4.5-5.0 | 12g | — | ND | ND | ND | ND | ND | ND | | | |
| 7-010 BH | 9.5-10 | 12g | — | ND | ND | ND | ND | ND | ND | | | |
| 7-017 BH | 1.5-2.0 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 7-017 BH | 5.5-6.0 | 10g | — | ND | ND | ND | ND | ND | ND | | | |

OPERATOR: Jack G. G. G.

DATE: 19 July 1984

FIELD GC DATA SUMMARY

SITE: Duluth ANCB, Site 17

GAIN: 10

CARRIER GAS FLOW: 13 μ l / min

GC OVEN TEMP: 40°C

ANALYSIS TIME: 450 sec

WINDOW: ±10%

MINIMUM AREA: 100 mV

[illegible]

OPERATOR: Jambudgn

DATE: 19 July 1994

FIELD GC DATA SUMMARY

SITE: DULUTH ANGB, Site 17
 GAIN: 10
 CARRIER GAS FLOW: 12.6 μ l/min

GC OVEN TEMP: 40°C
 ANALYSIS TIME: 450 sec
 WINDOW: $\pm 10\%$
 MINIMUM AREA: 50 mV

| Boring | Sample Interval (ft. BLS) | Sample Mass (grams) | Sample Dilution Factor | Concentrations (ppb) | | | | | | Additional Analytes | | |
|-----------|---------------------------|---------------------|------------------------|----------------------------------|---------------------|---------------|------------|----------|------------|---------------------|--|--|
| | | | | Benzene | Toluene | Ethyl-benzene | m,p-Xylene | O-Xylene | Total BTEX | | | |
| 0 ppb STD | | | | 1.3 VS | \Rightarrow 65 mV | Set to 50 mV | | | | | | |
| IR BLANK | | | | ND | ND | ND | ND | ND | ND | | | |
| 7-018 BH | 2.0-2.5 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 7-018 BH | 4.5-5.0 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 7-018 BH | 9.5-10.0 | 12g | — | ND | ND | ND | ND | ND | ND | | | |
| 0 ppb STD | | | | 89 | 72 | 83 | 151 | ND | 395 | | | |
| LIBRATE | | | | 100 | 80 | 93 | 169 | ND | 442 | | | |
| 0 ppb STD | | | | NEED TO ERASE LIBRARY & RESET L1 | | | | | | | | |
| LIBRATE | | | | | | | | | | | | |
| 0 ppb STD | | | | 2.0 VS \Rightarrow | 100 mV seller | | | | | | | |
| IR BLANK | | | | ND | ND | ND | ND | ND | ND | | | |
| 7-019 BH | 1.5-2.0 | 12g | — | ND | ND | ND | ND | ND | ND | | | |
| 7-019 BH | 5.0-6.0 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 7-019 BH | 9.5-10.0 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 7-020 BH | 2.0-2.5 | 12g | — | ND | ND | ND | ND | ND | ND | | | |
| 7-020 BH | 5.5-6.0 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 0 ppb STD | | | | 84 | 85 | 77 | 150 | ND | 396 | | | |
| LIBRATE | | | | 100 | 101 | 92 | 180 | ND | 473 | | | |
| IR BLANK | | | | ND | ND | ND | ND | ND | ND | | | |
| 7-020 BH | 9.5-10.0 | 12g | — | ND | ND | ND | ND | ND | ND | | | |
| 0 ppb STD | | | | 102 | 100 | 88 | 171 | ND | 461 | | | |
| LIBRATE | | | | 100 | 99 | 87 | 169 | ND | 455 | | | |
| IR BLANK | | | | ND | ND | ND | ND | ND | ND | | | |

OPERATOR: Joe Byrd Jr

DATE: 20 July 1994

FIELD GC DATA SUMMARY

SITE: DULUTH ANGB

GAIN: 10

CARRIER GAS FLOW: 12.9 ml/min

GC OVEN TEMP: 40°C

ANALYSIS TIME: 450 sec

WINDOW: ±10%

MINIMUM AREA: 100 mV

| Boring | Sample Interval (ft. BLS) | Sample Mass (grams) | Sample Dilution Factor | Concentrations (ppb) | | | | | | Additional Analytes | | |
|-------------|---------------------------|---------------------|------------------------|---------------------------|---------|-----------------|------------|----------|------------|---------------------|--|--|
| | | | | Benzene | Toluene | Ethylbenzene | m,p-Xylene | o-Xylene | Total BTEX | | | |
| | | | | | | | | | | | | |
| 100 ppb STD | | | | 1.6 VS | ⇒ | 100 mV | Setting | | | | | |
| AIR BLANK | | | | ND | ND | ND | ND | ND | ND | | | |
| 021-009 MW | — | 10 ml | — | ND | ND | ND | ND | ND | ND | | | |
| 021-010 MW | — | 10 ml | — | ND | ND | ND | ND | ND | ND | | | |
| 021-014 MW | — | 10 ml | — | ND | ND | ND | ND | ND | ND | | | |
| 021-026 MW | — | 10 ml | — | ND | ND | ND | ND | ND | ND | | | |
| 018-006 BH | 2.5' | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 100 ppb STD | | | | | | | | | | | | |
| CALIBRATION | | | | needs INITIAL CALIBRATION | | | | | | | | |
| 100 ppb STD | | | | 1.5 VS | ⇒ | 100 mV | Setting | | | | | |
| AIR BLANK | | | | ND | ND | ND | ND | ND | ND | | | |
| 018-006 BH | 1.7' | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 017-010 BH | 1.5-2.5 | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 018-007 BH | 2.5' | 10g | — | ND | ND | ND | ND | ND | ND | * | | |
| 100 ppb STD | | | | 1.2 mV | ⇒ | 50 mV | Setting | | | | | |
| AIR BLANK | | | | ND | ND | ND | ND | ND | ND | | | |
| 021-004 SD | sediment | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 021-005 SD | sediment | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 021-006 SD | sediment | 10g | — | ND | ND | ND | ND | ND | ND | | | |
| 021-007 SD | sediment | 12g | — | ND | ND | ND | ND | ND | ND | | | |
| 018-007 BH | 0.8-1.3 | 10g | — | ND | 7 | 215 | ND | 1,224 | 1,446 | | | |
| 1 ppm BTEX | | | | DRY | RUN | misses | SHOT | | | | | |
| | Set gain to | 2. | | | | | | | | | | |
| 1. ppm STD | | | | 4.0 VS | ⇒ | Set Min Area to | 20 | | | | | |

OPERATOR: for Byrd

DATE: 23 July 1994

* Something pegged-out chromatogram. will reshoot later.

2

GC OVEN TEMP: 40°C
ANALYSIS TIME: 450 sec
WINDOW: 510 %
MINIMUM AREA: 20 mV

[illegible]

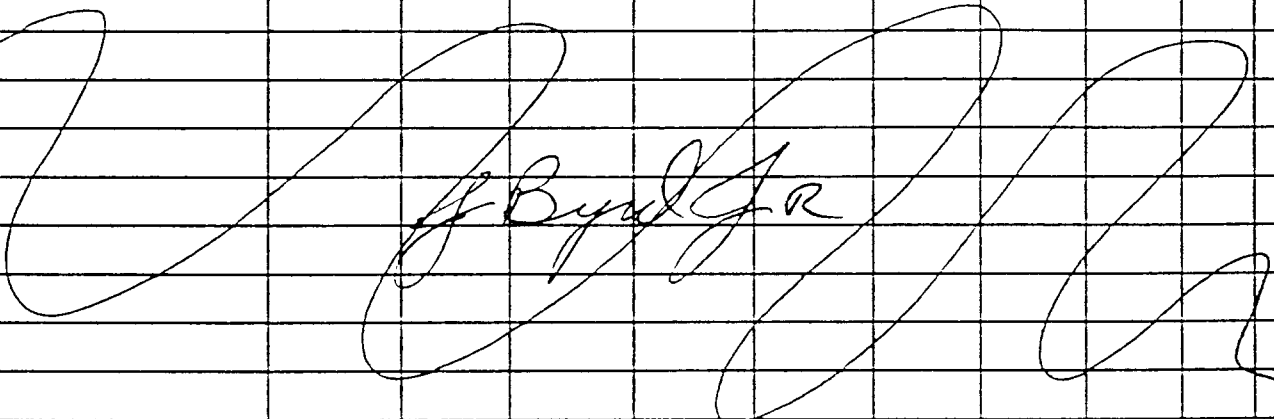
OPERATOR: J Byrd Jr

DATE: 23 July 1994

FIELD GC DATA SUMMARY

SITE: DULUTH ANGB
 GAIN: 1,000
 CARRIER GAS FLOW: 11.3 ml/min
12.0 ml/min

INJECTION VOLUME: 100 ul
 GC OVEN TEMP: 40°C
 ANALYSIS TIME: 750 sec 500 sec

| Analysis No. | Boring | Sample Interval (ft. BLS) | Sample Mass (grams) | Concentrations (ppb) | | | | | | | |
|--|--------------------------------|---------------------------|---------------------|----------------------|----------|--------------|------------|----------|------------|------|--|
| | | | | Benzene | Toluene | Ethylbenzene | m,p-Xylene | o-Xylene | Total BETX | | |
| 19 | 100 PPB | | | NO | o-xylene | Peak | | | | | |
| 20 | 100 PPB | | | 100 | 100 | 100 | 200 | 100 | 600 | | |
| 21 | 1 PPM | | | 1,000 | 1,000 | 1,000 | 2,000 | 1,000 | 6,000 | | |
| 22 | 10 PPM | | | 10,000 | 10,000 | 10,000 | 20,000 | 10,000 | 60,000 | | |
| 23 | AIR BLANK | | | 1 | 1 | 6 | 9 | ND | 17 | | |
| 24 | 025-004BH | 10'-12' | 10 | 1 | 4 | 4 | 8 | ND | 17 | | |
| 25 | 025-004BH | 18'-20' | 10 | 1 | 3 | ND | ND | ND | 4 | | |
| 26 | 021-026BH | 8'-10' | 10 | 1 | 3 | ND | ND | ND | 4 | | |
| 27 | 021-026BH | 4'-6' | 10 | 1 | 2 | 4 | 5 | ND | 12 | | |
| 28 | ^{RESHOT} 025-004BH | 5'-7' | 10 | 1 | 3 | 2 | 6 | ND | 12 | Peak | |
| 29 | 100 PPB | | | 106 | 103 | 98 | 188 | 68 | 563 | | |
|  | | | | | | | | | | | |
| | | | | | | | | | | | |
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| | | | | | | | | | | | |

| Calibration Information | | Analytes | | | | | | | |
|-------------------------|----------------|----------|---------|--------------|------------|----------|--|--|--|
| | | Benzene | Toluene | Ethylbenzene | m,p-Xylene | o-Xylene | | | |
| 0.1 ppm | Retention Time | 64.2 | 126.1 | 258.4 | 277.8 | 324.5 | | | |
| | Response | 201 | 130.8 | 79.9 | 58.9 | 9.1 | | | |
| 1 ppm | Retention Time | 64.6 | 126.5 | 259.4 | 278.4 | 325.8 | | | |
| | Response | 5637 | 3045 | 1685 | 1097 | 339 | | | |
| 10 ppm | Retention Time | 65.2 | 127.7 | 260.2 | 278.4 | 325.3 | | | |
| | Response | 17,771 | 19,993 | 10,465 | 6,731 | 1323 | | | |

OPERATOR: J. Byrd Jr.

DATE: 16 May 95

FIELD GC DATA SUMMARY

SITE: DULUTH ANGB
 GAIN: 1,000
 CARRIER GAS FLOW: 12 ul/min

INJECTION VOLUME: 100 ul
 GC OVEN TEMP: 40°C
 ANALYSIS TIME: 460 sec
500 sec

| Analysis No. | Boring | Sample Interval (ft. BLS) | Sample Mass (grams) | Concentrations (ppb) | | | | | | | |
|--------------|--|---------------------------|---------------------|---------------------------------|---------|--------------|------------|----------|------------|--------|--|
| | | | | Benzene | Toluene | Ethylbenzene | m,p-Xylene | o-Xylene | Total BETX | | |
| 1 | 100 PPB | | | ND | | | | | | | |
| 2 | 100 PPB | | | ND | | | | | | | |
| 3 | 100 PPB | | | 100 | 100 | 100 | 200 | 100 | 600 | | |
| 4 | 1 PPM | | | 1,000 | 1,000 | 1,000 | 2,000 | 1,000 | 6,000 | | |
| 5 | 10 PPM | | | 10,000 | 10,000 | 10,000 | 20,000 | 1,000 | 60,000 | | |
| 6 | AIR BLANK | | | 1 | 12 | ND | 83 | 20 | 116 | | |
| 7 | 021-027 BH | 4'-6' | 10 | 1 | 3 | ND | 31 | 11 | 56 | | |
| 8 | 021-027 BH | 8'-10' | 10 | ND | 3 | 3 | 8 | 4 | 18 | | |
| 9 | AIR BLANK | | | 2 | 1 | ND | ND | ND | 3 | | |
| 10 | 021-028 BH | 0.5'-2.5' | 10 | ND | 2 | 2 | 3 | 2 | 9 | | |
| 11 | 021-028 BH | 8'-10' | 20 | ND | 2 | 3 | 5 | 5 | 15 | | |
| 12 | 100 PPB | | | 97 | 70 | 62 | 119 | 51 | 399 | | |
| | RECAL | | | 100 | 100 | 100 | 200 | 100 | 600 | | |
| 13 | AIR BLANK | | | 3 | ND | 1 | ND | ND | 4 | | |
| 14 | 025-012 BH | 0.5'-2.5' | 10 | 3 | 21 | 17 | ND | 39 | 80 | | |
| 15 | 025-012 BH | 5'-7' | 10 | A lot of peaks, but no readings | | | | | | | |
| 16 | ^{20 ul injection} 025-012 BH | 5'-7' | 10 | ND | ND | ND | ND | ND | ND | Resist | |
| 17 | 025-012 BH | 10'-12' | 10 | 48 | 31 | 4 | ND | 14 | 97 | | |
| 18 | 025-012 BH | 18'-20' | 10 | 41 | 46 | ND | ND | ND | 87 | | |
| 19 | 100 PPB | | | 77 | 84 | 80 | 151 | 78 | 470 | | |

| Calibration Information | | Analytes | | | | | | | |
|-------------------------|----------------|----------|---------|--------------|------------|----------|--|--|--|
| | | Benzene | Toluene | Ethylbenzene | m,p-Xylene | o-Xylene | | | |
| 0.1 ppm | Retention Time | 76.5 | 138.5 | 267.2 | 285.6 | 337.3 | | | |
| | Response | 277 | 182 | 107 | 130 | 48 | | | |
| 1 ppm | Retention Time | 77.2 | 138.9 | 268.2 | 286.6 | 337.3 | | | |
| | Response | 7577 | 3536 | 2385 | 2445 | 1001 | | | |
| 10 ppm | Retention Time | 79.8 | 141.3 | 272.2 | 289.8 | 341.0 | | | |
| | Response | 31,558 | 26021 | 18,552 | 18,370 | 5875 | | | |

OPERATOR: J Byrd Jr

DATE: 17 May 95

FIELD GC DATA SUMMARY

SITE: DULUTH AW6B
 GAIN: 1000
 CARRIER GAS FLOW: 12 μ l/min

INJECTION VOLUME: 100 μ l
 GC OVEN TEMP: 40°C
 ANALYSIS TIME: 500 sec

| Analysis No. | Boring | Sample Interval (ft. BLS) | Sample Mass (grams) | Concentrations (ppb) | | | | | | | |
|---------------|-----------------------|---------------------------|---------------------|----------------------|---------|--------------|------------|----------|------------|--|--|
| | | | | Benzene | Toluene | Ethylbenzene | m,p-Xylene | o-Xylene | Total BETX | | |
| | Recal | | | 100 | 100 | 100 | 200 | 100 | 600 | | |
| 20 | AIR BLANK | | | 3 | ND | 1 | ND | 73 | 77 | | |
| 21 | 025-013 BH | 05'-25' | 10 | 4 | 3 | 1 | 3 | ND | 11 | | |
| 22 | 025-013 BH | 5'-7' | 10 | 3 | 2 | 20 | ND | 106 | 131 | | |
| 23 | 025-013 BH | 10'-12' | 10 | 4 | 2 | 4 | 2 | ND | 12 | | |
| 24 | 025-013 BH | 18'-20' | 10 | 10 | 17 | 3 | ND | 4 | 34 | | |
| 25 | 100 PPB | | | 96 | 92 | 87 | 178 | 93 | 546 | | |
| | Recal | | | 100 | 100 | 100 | 200 | 100 | 600 | | |
| 26 | AIR BLANK | | | 1 | ND | ND | ND | ND | 1 | | |
| 27 | 017-024 BH | 0.5'-2.5' | 6 | 1 | ND | 8 | ND | 13 | 22 | | |
| 28 | 017-024 BH | 4'-6' | 10 | 4 | 1 | ND | 44 | ND | 49 | | |
| 29 | 017-024 BH | 8'-10' | 15 | Bygones | | | | | | | |
| 30 | 017-025 BH | 0.5'-2.5' | 10 | 6 | 1 | 4 | 9 | ND | 20 | | |
| 30 | 017-024 BH | 8'-10' | 15 | 11 | ND | 16 | ND | 4 | 31 | | |
| 31 | 017-025 BH | 4'-6' | 10 | 6 | 1 | 4 | ND | ND | 11 | | |
| 32 | 100 PPB | | | 96 | 81 | 64 | 115 | 108 | 464 | | |
| | Recal | | | 100 | 100 | 100 | 200 | 100 | 600 | | |
| 33 | AIR BLANK | | | 5 | ND | 4 | ND | 4 | 13 | | |
| 34 | 017-022 BH | 0.5'-2.5' | 10 | 5 | 3 | 7 | 12 | 1 | 28 | | |
| 35 | 017-023 BH | 0.5'-2.5' | 10 | 3 | 3 | 7 | 9 | ND | 22 | | |

| Calibration Information | | Analytes | | | | | | | |
|-------------------------|----------------|-----------------|---------|--------------|------------|----------|--|--|--|
| | | Benzene | Toluene | Ethylbenzene | m,p-Xylene | o-Xylene | | | |
| 0.1 ppm | Retention Time | 96.7 | 144.4 | 276.1 | 293.8 | 347 | | | |
| | Response | 93.8 | | | | | | | |
| 1 ppm | Retention Time | | | | | | | | |
| | Response | | | | | | | | |
| 10 ppm | Retention Time | | | | | | | | |
| | Response | | | | | | | | |

OPERATOR: gB yulpr

DATE: 17 May 95

70

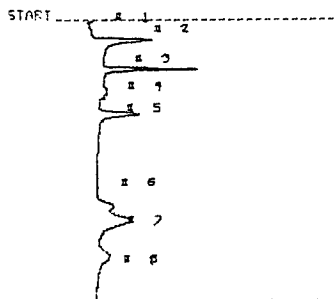
INJECTION VOLUME: 100 μ l
GC OVEN TEMP: 40°C
ANALYSIS TIME: 500 sec

A handwritten signature, possibly 'L. J. R.', is written in black ink on a grid of graph paper. The signature is fluid and cursive, with the letters overlapping significantly. The 'L' is large and loops around, followed by a 'J' and an 'R'. The signature is positioned in the lower half of the page.

| | | | | | | | | | |
|---------|----------------|--|--|--|--|--|--|--|--|
| 0.1 ppm | Retention Time | | | | | | | | |
| | Response | | | | | | | | |
| 1 ppm | Retention Time | | | | | | | | |
| | Response | | | | | | | | |
| 10 ppm | Retention Time | | | | | | | | |
| | Response | | | | | | | | |

DATE: 17 May 95

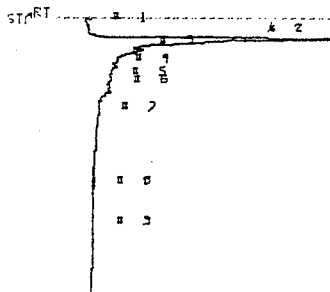
PHOTOVAC



STOP # 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 12:41
 ANALYSIS # 5 158 PPM STD
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 5 012-025 1.5-2.0

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 2 | 31.7 | 1.8 US |
| BENZENE | 3 | 78.3 | 37.80 PPM |
| UNKNOWN | 4 | 117.4 | 125.2 PPM |
| TOLUENE | 5 | 152.6 | 100.8 PPM |
| E-BEN, MP-XYL | 7 | 324.9 | 231.6 PPM |

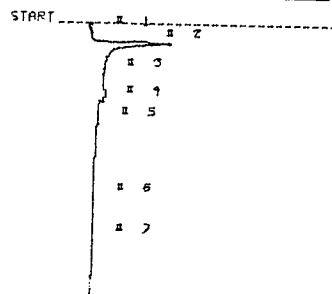
PHOTOVAC



STOP # 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 13: 5
 ANALYSIS # 15 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 5 012-025 10-11

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|----------|
| UNKNOWN | 2 | 31.1 | 2.8 US |
| UNKNOWN | 3 | 51.1 | 2.1 US |

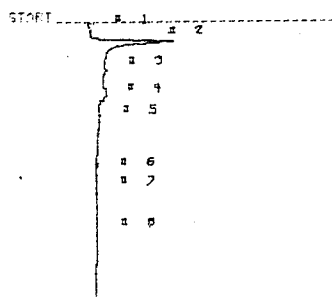
PHOTOVAC



STOP # 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 13:35
 ANALYSIS # 18 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 5 021-023 1.5-2.0

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 2 | 32.0 | 3.3 US |
| BENZENE | 3 | 78.3 | 73.84 PPM |
| UNKNOWN | 4 | 117.4 | 373.2 PPM |

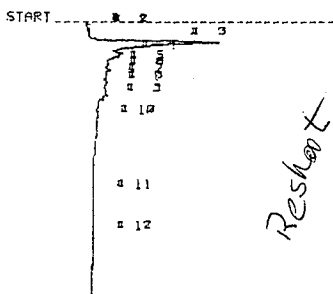
PHOTOVAC



STOP # 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 12:52
 ANALYSIS # 13 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 5 012-025 1.5-2.0

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 2 | 31.7 | 3.3 US |
| BENZENE | 3 | 78.3 | 82.32 PPM |
| UNKNOWN | 4 | 117.4 | 838.3 PPM |
| TOLUENE | 5 | 152.6 | 3.718 PPM |

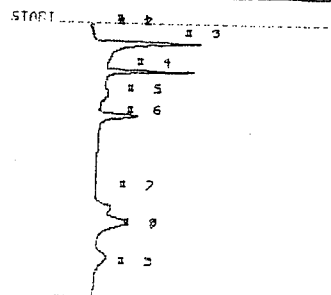
PHOTOVAC



STOP # 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 13:14
 ANALYSIS # 16 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 5 013-025 10-11

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|-----------|
| UNKNOWN | 2 | 31.7 | 2.8 US |
| UNKNOWN | 4 | 51.1 | 125.2 PPM |

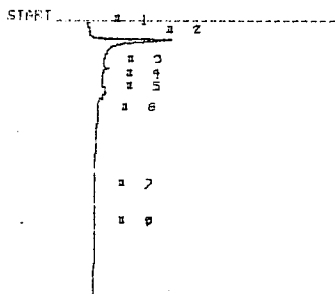
PHOTOVAC



STOP # 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 13:44
 ANALYSIS # 13 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 5 021-023 1.5-2.0

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 3 | 31.7 | 3.3 US |
| BENZENE | 4 | 78.3 | 176.0 PPM |
| UNKNOWN | 5 | 117.4 | 351.3 PPM |
| TOLUENE | 6 | 151.5 | 33.24 PPM |
| E-BEN, MP-XYL | 8 | 324.9 | 277.1 PPM |

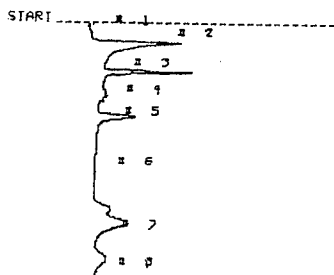
PHOTOVAC



STOP # 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 13:52
 ANALYSIS # 13 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 5 012-025 1.5-2.0

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 2 | 31.7 | 3.3 US |
| BENZENE | 3 | 78.3 | 82.32 PPM |
| UNKNOWN | 4 | 117.4 | 838.3 PPM |
| TOLUENE | 5 | 152.6 | 3.718 PPM |

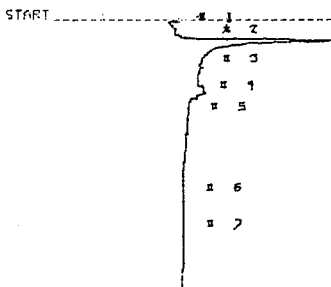
PHOTOVAC



STOP # 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 13:57
 ANALYSIS # 20 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 5 1021-023 1.5-2.0

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|----------|
| UNKNOWN | 2 | 31.2 | 4.1 US |
| UNKNOWN | 3 | 78.3 | 2.5 US |
| UNKNOWN | 4 | 112.4 | 1.2 US |
| UNKNOWN | 5 | 152.6 | 1.9 US |
| UNKNOWN | 7 | 327.1 | 2.6 US |

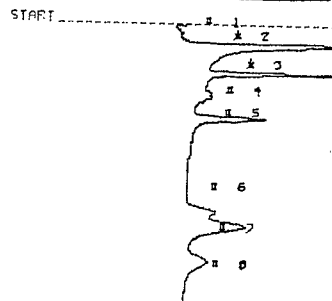
PHOTOVAC



STOP # 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 14:20
 ANALYSIS # 22 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 10 AIR BLANK

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 2 | 31.2 | 7.4 US |
| BENZENE | 3 | 78.3 | 38.41 PPM |
| UNKNOWN | 4 | 112.4 | 1.2 US |

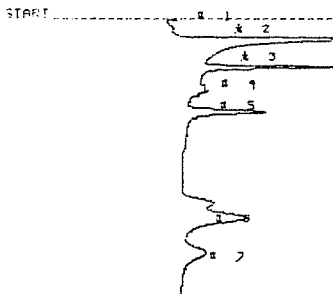
PHOTOVAC



STOP # 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 14:38
 ANALYSIS # 24 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 10 100 PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|----------------|------|-------|-----------|
| UNKNOWN | 2 | 31.5 | 3.1 US |
| BENZENE | 3 | 77.1 | 31.46 PPM |
| UNKNOWN | 4 | 112.4 | 1.6 US |
| TOLUENE | 5 | 152.6 | 33.33 PPM |
| E-BENZ, NP-XYL | 7 | 327.1 | 271.6 PPM |

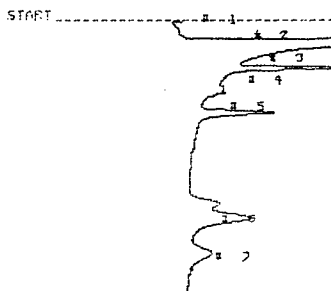
PHOTOVAC



STOP # 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 14:26
 ANALYSIS # 21 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 10 021-023 1.5-2.0

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|----------|
| UNKNOWN | 2 | 31.3 | 11.2 US |
| UNKNOWN | 3 | 77.3 | 5.2 US |
| UNKNOWN | 4 | 112.4 | 1.8 US |
| UNKNOWN | 5 | 151.5 | 1.9 US |
| UNKNOWN | 6 | 327.1 | 5.2 US |

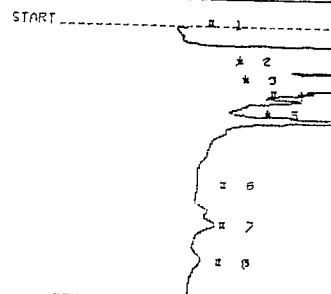
PHOTOVAC



STOP # 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 14:28
 ANALYSIS # 23 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 10 100 PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|----------------|------|-------|-----------|
| UNKNOWN | 2 | 35.4 | 31.5 US |
| BENZENE | 3 | 76.6 | 123.5 PPM |
| UNKNOWN | 4 | 111.3 | 1.4 US |
| TOLUENE | 5 | 151.5 | 46.21 PPM |
| E-BENZ, NP-XYL | 6 | 327.1 | 271.3 PPM |

PHOTOVAC



STOP # 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 14:43
 ANALYSIS # 25 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 10 021-023 10.5-11

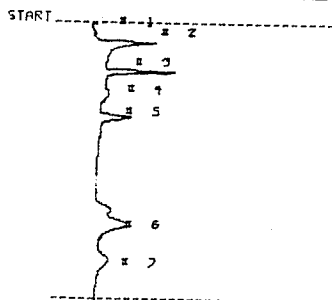
| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|----------------|------|-------|-----------|
| UNKNOWN | 2 | 48.2 | 133.3 US |
| UNKNOWN | 3 | 86.3 | 19.9 US |
| TOLUENE | 5 | 149.3 | 220.0 PPM |
| E-BENZ, NP-XYL | 7 | 327.1 | 33.31 PPM |

PHOTOVAC

1 COMPOUND ID # R.T. LIMIT

| | | | |
|----------------|---|-------|-----------|
| BENZENE | 1 | 77.0 | 100.0 PPM |
| TOLUENE | 2 | 151.5 | 100.0 PPM |
| E-BENZ, NP-XYL | 3 | 327.1 | 100.0 PPM |

PHOTOVAC



STOP @ 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 14:53
 ANALYSIS # 26 J BYRD, JR.
 INTERNAL TEMP 39 DULUTH ANG
 GAIN 5 100 PPS

COMPOUND NAME PEAK R.T. AREA/PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 2 | 32.0 | 2.7 US |
| BENZENE | 3 | 79.3 | 72.90 PPS |
| UNKNOWN | 4 | 112.4 | 257.5 MUS |
| UNKNOWN | 5 | 152.6 | 33.19 PPS |
| E-BEN, MP-XYL | 6 | 322.1 | 225.5 PPS |

PHOTOVAC

CALIBRATED PEAK 3, BENZENE

SAMPLE LIBRARY 1 JUL 13 1994 15:1
 ANALYSIS # 26 J BYRD, JR.
 INTERNAL TEMP 39 DULUTH ANG
 GAIN 5 100 PPS

COMPOUND NAME PEAK R.T. AREA/PPM

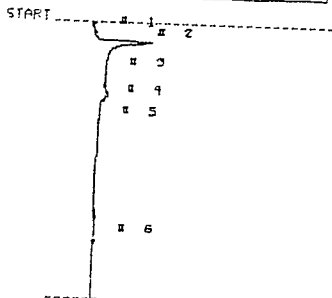
| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 2 | 32.0 | 2.7 US |
| BENZENE | 3 | 79.3 | 100.0 PPS |
| UNKNOWN | 4 | 112.4 | 257.5 MUS |
| UNKNOWN | 5 | 152.6 | 119.1 PPS |
| E-BEN, MP-XYL | 6 | 322.1 | 225.6 PPS |

PHOTOVAC

1 COMPOUND ID # R.T. LIMIT

| COMPOUND | ID # | R.T. | LIMIT |
|---------------|------|-------|-----------|
| BEN | 1 | 79.3 | 100.0 PPS |
| TOL | 2 | 152.6 | 100.0 PPS |
| E-BEN, MP-XYL | 3 | 322.1 | 100.0 PPS |

PHOTOVAC



STOP @ 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 15:23
 ANALYSIS # 28 J BYRD, JR.
 INTERNAL TEMP 39 DULUTH ANG
 GAIN 5 100 PPS

COMPOUND NAME PEAK R.T. AREA/PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 2 | 32.0 | 2.6 US |
| BEN | 3 | 79.3 | 21.04 PPS |
| UNKNOWN | 4 | 112.4 | 149.2 MUS |

PHOTOVAC

JUL 13 1994 15:06

FIELD: 30
 POWER: 42

| FIELD | POWER | AREA |
|---------|-------|------|
| SAMPLE | 0.0 | 0.0 |
| CAL | 0.0 | 0.0 |
| EVENT 3 | 0.0 | 0.0 |
| EVENT 4 | 0.0 | 0.0 |
| EVENT 5 | 0.0 | 0.0 |
| EVENT 6 | 0.0 | 0.0 |
| EVENT 8 | 0.0 | 0.0 |

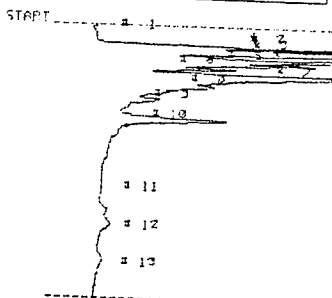
PHOTOVAC

JUL 13 1994 15:07

FIELD: 30
 POWER: 43

| FIELD | POWER | AREA |
|---------|-------|-------|
| SAMPLE | 0.0 | 10.0 |
| CAL | 0.0 | 0.0 |
| EVENT 3 | 0.0 | 100.0 |
| EVENT 4 | 0.0 | 0.0 |
| EVENT 5 | 0.0 | 0.0 |
| EVENT 6 | 0.0 | 0.0 |
| EVENT 8 | 0.0 | 0.0 |

PHOTOVAC

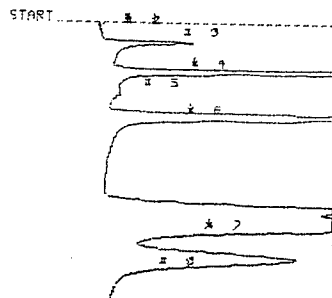


STOP @ 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 15:32
 ANALYSIS # 23 J BYRD, JR.
 INTERNAL TEMP 39 DULUTH ANG
 GAIN 5 100 PPS

COMPOUND NAME PEAK R.T. AREA/PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 2 | 31.6 | 4.1 US |
| UNKNOWN | 3 | 39.5 | 3.4 US |
| UNKNOWN | 4 | 53.7 | 3.2 US |
| UNKNOWN | 5 | 59.1 | 3.5 US |
| UNKNOWN | 6 | 63.1 | 2.3 US |
| BEN | 7 | 76.7 | 612.9 PPS |
| UNKNOWN | 8 | 92.5 | 3.2 US |
| TOL | 13 | 151.5 | 333.0 PPS |
| E-BEN MP-XYL | 12 | 324.6 | 136.7 PPS |

PHOTOVAC

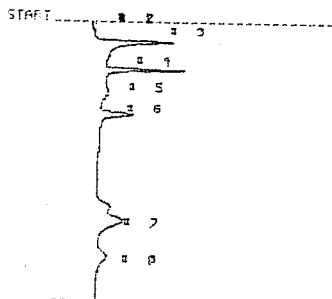


STOP @ 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 15:42
 ANALYSIS # 32 J BYRD, JR.
 INTERNAL TEMP 39 DULUTH ANG
 GAIN 5 1 PPM

COMPOUND NAME PEAK R.T. AREA/PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|----------|
| UNKNOWN | 1 | 3.5 | 5.3 MUS |
| UNKNOWN | 3 | 31.7 | 3.5 US |
| UNKNOWN | 4 | 76.8 | 10.5 US |
| UNKNOWN | 5 | 111.0 | 1.5 US |
| UNKNOWN | 6 | 149.3 | 15.0 US |
| UNKNOWN | 7 | 311.1 | 233.5 US |

PHOTOVAC

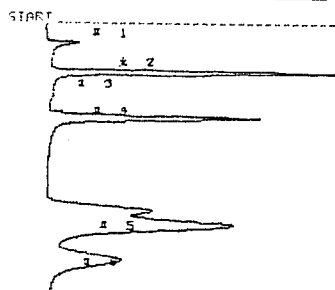


STOP @ 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 15:12
 ANALYSIS # 27 J BYRD, JR.
 INTERNAL TEMP 39 DULUTH ANG
 GAIN 5 100 PPS

COMPOUND NAME PEAK R.T. AREA/PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 3 | 31.7 | 3.1 US |
| UNKNOWN | 4 | 78.2 | 2.2 US |
| UNKNOWN | 5 | 112.4 | 292.2 MUS |
| UNKNOWN | 8 | 322.5 | 212.0 MUS |

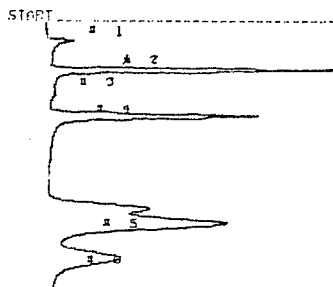
PHOTOVAC



STOP @ 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 15:55
 ANALYSIS # 33 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 1 PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|----------|
| UNKNOWN | 1 | 32.0 | 744.3 |

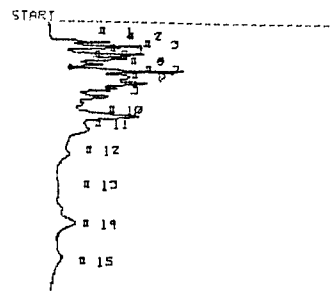
PHOTOVAC



STOP @ 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 16:15
 ANALYSIS # 35 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 1 PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|----------|
| UNKNOWN | 1 | 32.0 | 1.0 |
| UNKNOWN | 2 | 26.8 | 2.3 |
| UNKNOWN | 3 | 111.0 | 368.3 |
| UNKNOWN | 4 | 152.6 | 6.3 |
| UNKNOWN | 5 | 327.1 | 17.9 |

PHOTOVAC



STOP @ 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 16:39
 ANALYSIS # 37 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 021-022 6.0-6.5

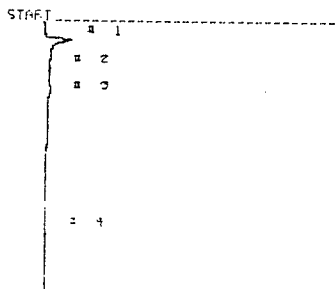
| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|----------------|------|-------|----------|
| UNKNOWN | 1 | 32.0 | 744.3 |
| UNKNOWN | 2 | 26.8 | 1.7 |
| UNKNOWN | 3 | 31.5 | 1.3 |
| UNKNOWN | 4 | 53.1 | 1.1 |
| UNKNOWN | 5 | 69.6 | 371.4 |
| BENZ | 6 | 78.3 | 315.2 |
| UNKNOWN | 7 | 98.2 | 2.6 |
| UNKNOWN | 8 | 120.3 | 31.4 |
| UNKNOWN, PEXYL | 9 | 229.3 | 322.3 |

PHOTOVAC

2 COMPOUND ID # R.T. LIMIT

BENZENE 1 32.0 1.000 PPM
 BEN, PEXYL 3 327.1 1.000 PPM

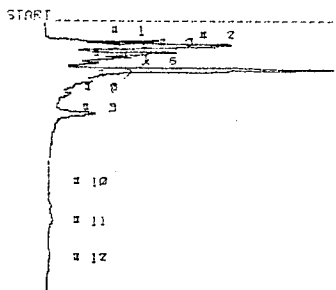
PHOTOVAC



STOP @ 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 16:16
 ANALYSIS # 34 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 AIR

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|----------|
| UNKNOWN | 1 | 32.0 | 791.9 |
| UNKNOWN | 3 | 117.4 | 48.6 |
| UNKNOWN | 4 | 323.3 | 6.3 |

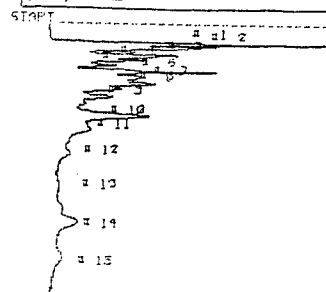
PHOTOVAC



STOP @ 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 16:28
 ANALYSIS # 36 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 4 PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|----------|
| UNKNOWN | 1 | 32.0 | 1.2 |
| UNKNOWN | 2 | 31.5 | 4.3 |
| UNKNOWN | 3 | 51.5 | 2.5 |
| UNKNOWN | 4 | 59.1 | 1.1 |
| UNKNOWN | 5 | 61.5 | 227.2 |
| BENZ | 6 | 78.3 | 1.110 |
| UNKNOWN | 7 | 98.2 | 1.2 |
| TOLUENE | 8 | 152.5 | 112.5 |
| BEN, PEXYL | 11 | 327.1 | 61.10 |

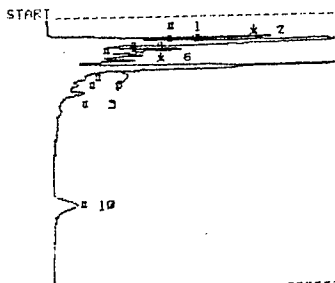
PHOTOVAC



STOP @ 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 16:50
 ANALYSIS # 38 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 021-022 6.0-6.5

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|----------|
| UNKNOWN | 1 | 32.0 | 3.4 |
| UNKNOWN | 2 | 32.4 | 0.5 |
| UNKNOWN | 3 | 51.5 | 2.7 |
| UNKNOWN | 4 | 59.1 | 1.5 |
| UNKNOWN | 5 | 63.5 | 1.2 |
| BENZ | 6 | 78.3 | 334.3 |
| UNKNOWN | 7 | 98.2 | 2.4 |
| UNKNOWN | 8 | 98.2 | 2.3 |
| UNKNOWN | 9 | 120.4 | 334.4 |
| TOLUENE | 10 | 152.5 | 233.6 |
| UNKNOWN | 11 | 176.4 | 360.2 |
| UNKNOWN | 12 | 209.0 | 62.3 |
| BEN, PEXYL | 14 | 327.1 | 720.3 |

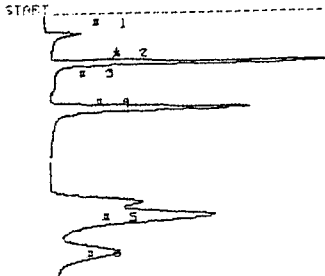
PHOTOVAC



STOP 9 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 17:4
 ANALYSIS # 39 J BYRD, JR
 INTERNAL TEMP 35 DULUTH ANG8
 GAIN 2 021-024 16.5-17

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|----------|
| UNKNOWN | 1 | 32.9 | 2.5 US |
| UNKNOWN | 2 | 38.9 | 2.1 US |
| UNKNOWN | 3 | 51.1 | 2.9 US |
| UNKNOWN | 4 | 60.1 | 1.3 US |
| UNKNOWN | 5 | 68.6 | 1.4 US |
| UNKNOWN | 6 | 122.9 | 1299.508 |

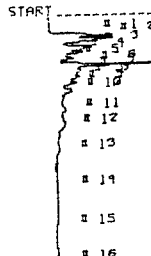
PHOTOVAC



STOP 9 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 17:31
 ANALYSIS # 41 J BYRD, JR
 INTERNAL TEMP 35 DULUTH ANG8
 GAIN 2 1 PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 1 | 32.9 | 1.4 US |
| BENZ | 2 | 79.9 | 1.091 PPM |
| UNKNOWN | 3 | 110.2 | 619.9 MUS |
| TOLUENE | 4 | 153.7 | 376.1 PPM |
| EBEN, MPXYL | 5 | 329.3 | 2.711 PPM |

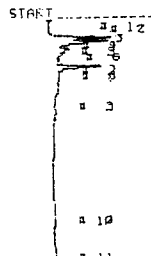
PHOTOVAC



STOP 9 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 17:55
 ANALYSIS # 44 J BYRD, JR
 INTERNAL TEMP 35 DULUTH ANG8
 GAIN 2 021-022 14.5-15

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 1 | 32.6 | 904.1 MUS |
| UNKNOWN | 2 | 37.7 | 1.2 US |
| UNKNOWN | 3 | 51.9 | 992.1 MUS |
| UNKNOWN | 4 | 53.6 | 535.2 MUS |
| UNKNOWN | 5 | 69.1 | 333.3 MUS |
| BENZ | 6 | 79.5 | 240.1 PPM |
| UNKNOWN | 7 | 89.5 | 824.9 MUS |
| UNKNOWN | 8 | 98.9 | 694.5 MUS |
| UNKNOWN | 9 | 109.5 | 695.7 MUS |
| UNKNOWN | 10 | 121.7 | 710.4 MUS |
| TOLUENE | 11 | 151.5 | 11.78 PPM |
| UNKNOWN | 12 | 175.6 | 113.6 MUS |
| EBEN, MPXYL | 13 | 329.3 | 11.35 PPM |

PHOTOVAC



STOP 9 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 17:01
 ANALYSIS # 40 J BYRD, JR
 INTERNAL TEMP 35 DULUTH ANG8
 GAIN 2 021-024 16.5-17

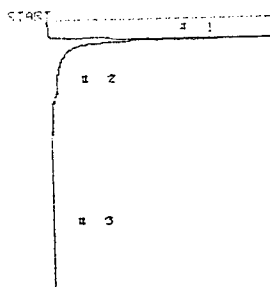
| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 1 | 32.5 | 759.8 MUS |
| UNKNOWN | 2 | 37.7 | 1.0 US |
| UNKNOWN | 3 | 51.5 | 935.9 MUS |
| UNKNOWN | 4 | 58.6 | 242.2 MUS |
| UNKNOWN | 5 | 62.1 | 122.4 MUS |
| BENZ | 6 | 79.5 | 141.5 PPM |
| UNKNOWN | 7 | 89.5 | 226.5 MUS |
| UNKNOWN | 8 | 102.4 | 293.2 MUS |
| TOLUENE | 9 | 153.7 | 2.688 PPM |
| EBEN, MPXYL | 10 | 329.3 | 11.33 PPM |

PHOTOVAC

STOP 9 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 17:35
 ANALYSIS # 42 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 1 PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|----------|
|---------------|------|------|----------|

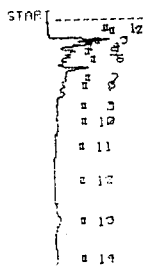
PHOTOVAC



STOP 9 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 17:43
 ANALYSIS # 43 J BYRD, JR
 INTERNAL TEMP 35 DULUTH ANG8
 GAIN 2 1 PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 1 | 32.3 | 5.9 US |
| UNKNOWN | 2 | 111.8 | 241.8 MUS |

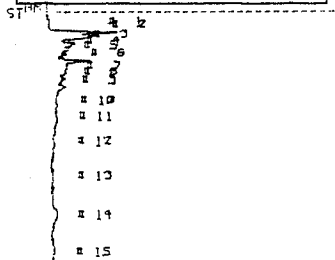
PHOTOVAC



STOP 9 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 18:0
 ANALYSIS # 45 J BYRD, JR
 INTERNAL TEMP 35 DULUTH ANG8
 GAIN 2 021-024 16.5-17

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 1 | 32.3 | 393.3 MUS |
| UNKNOWN | 2 | 111.8 | 241.8 MUS |

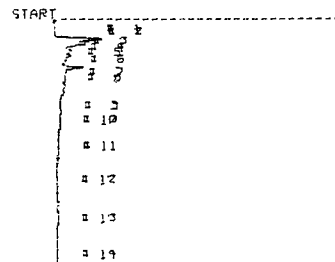
PHOTOVAC



STOP 2 400.0
 SAMPLE LIBRARY 2 JUL 13 1994 18:16
 ANALYSIS # 46 J BYRD, JR
 INTERNAL TEMP 35 DULUTH ANG8
 GAIN 2 021-021 14.5-15

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 1 | 32.3 | 1.0 US |
| UNKNOWN | 2 | 37.4 | 583.9 US |
| UNKNOWN | 3 | 51.5 | 273.7 US |
| UNKNOWN | 4 | 52.6 | 224.7 US |
| UNKNOWN | 5 | 68.8 | 204.3 US |
| BENZ | 6 | 78.9 | 102.5 PPM |
| EBEN, MPXYL | 14 | 227.1 | 50.56 PPM |

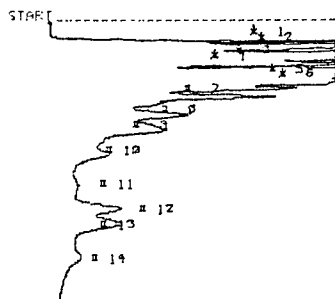
PHOTOVAC



STOP 2 400.0
 SAMPLE LIBRARY 2 JUL 13 1994 18:27
 ANALYSIS # 47 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 021-023 14.5-15

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 1 | 32.3 | 744.2 MUG |
| UNKNOWN | 2 | 37.4 | 733.7 MUG |
| UNKNOWN | 3 | 51.5 | 273.7 MUG |
| UNKNOWN | 4 | 52.6 | 224.7 MUG |
| UNKNOWN | 5 | 68.8 | 204.3 MUG |
| BENZ | 6 | 78.9 | 102.5 PPM |
| UNKNOWN | 7 | 88.9 | 273.7 MUG |
| UNKNOWN | 3 | 108.4 | 223.1 MUG |

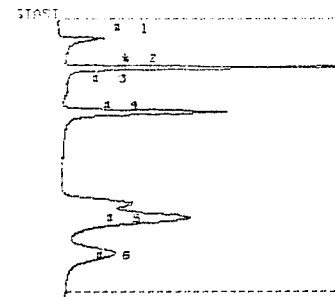
PHOTOVAC



STOP 2 400.0
 SAMPLE LIBRARY 2 JUL 13 1994 18:30
 ANALYSIS # 48 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 021-024 10.5-11

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 1 | 32.4 | 4.3 US |
| UNKNOWN | 2 | 38.5 | 12.9 US |
| UNKNOWN | 3 | 55.5 | 23.3 US |
| UNKNOWN | 4 | 67.7 | 6.2 US |
| BENZ | 5 | 82.4 | 6.104 PPM |
| UNKNOWN | 9 | 125.7 | 202.5 MUG |
| TOLUENE | 8 | 151.5 | 148.4 PPM |
| UNKNOWN | 8 | 175.5 | 303.4 MUG |
| UNKNOWN | 13 | 214.3 | 34.3 MUG |
| UNKNOWN | 11 | 258.2 | 121.3 MUG |
| EBEN, MPXYL | 12 | 302.5 | 407.3 PPM |
| EBEN, MPXYL | 13 | 328.3 | 324.5 PPM |

PHOTOVAC



STOP 2 400.0
 SAMPLE LIBRARY 2 JUL 13 1994 18:51
 ANALYSIS # 49 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 1 PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 1 | 31.7 | 1.2 US |
| BENZ | 2 | 77.7 | 344.2 PPM |
| UNKNOWN | 3 | 111.0 | 330.4 MUG |
| TOLUENE | 4 | 152.6 | 674.4 PPM |
| EBEN, MPXYL | 5 | 227.1 | 2.955 PPM |

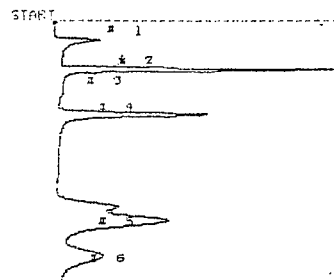
PHOTOVAC

CALIBRATED PEAK 2, BENZ

SAMPLE LIBRARY 2 JUL 13 1994 18:53
 ANALYSIS # 49 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 1 PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 1 | 31.7 | 1.2 US |
| BENZ | 2 | 77.7 | 1.000 PPM |
| UNKNOWN | 3 | 111.0 | 330.4 MUG |
| TOLUENE | 4 | 152.6 | 738.4 PPM |
| EBEN, MPXYL | 5 | 227.1 | 2.933 PPM |

PHOTOVAC



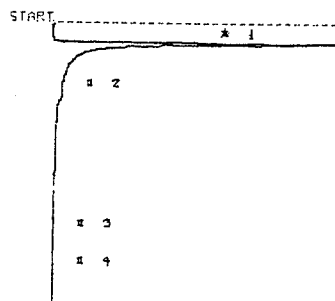
STOP 2 400.0
 SAMPLE LIBRARY 2 JUL 13 1994 19:14
 ANALYSIS # 50 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 1 PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 1 | 32.3 | 1.2 US |
| UNKNOWN | 2 | 77.7 | 6.5 US |
| UNKNOWN | 3 | 111.0 | 336.5 MUG |
| UNKNOWN | 4 | 152.6 | 4.2 US |
| UNKNOWN | 5 | 227.1 | 10.9 US |

PHOTOVAC

| 2 | COMPOUND | ID # | R.T. | LIMIT |
|---------|----------|-------|-----------|-----------|
| BENZ | 1 | 77.5 | 1.000 PPM | |
| TOLUENE | 2 | 152.6 | 1.000 PPM | |
| EBENZ | MPXYL | 3 | 227.1 | 1.000 PPM |

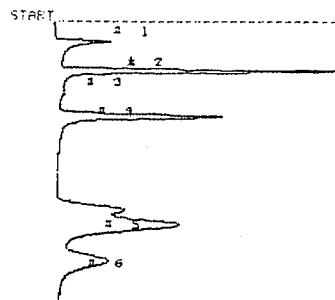
PHOTOVAC



STOP 8 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 19:18
 ANALYSIS # 51 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 *AIR BLANK*

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|----------|
| UNKNOWN | 1 | 31.5 | 7.5 US |

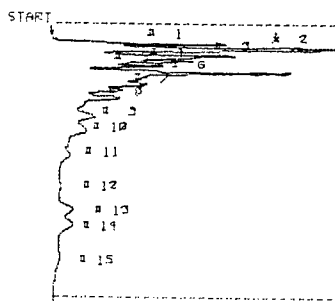
PHOTOVAC



STOP 8 430.0 JUL 13 1994 19:46
 SAMPLE LIBRARY 2
 ANALYSIS # 53 J BYRD, JR
 INTERNAL TEMP 35 DULUTH ANG8
 GAIN 2 1 PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|-----------|
| UNKNOWN | 1 | 32.3 | 1.8 US |
| UNKNOWN | 2 | 12.5 | 1.113 PPM |
| UNKNOWN | 3 | 14.5 | 1.113 PPM |
| UNKNOWN | 4 | 17.5 | 1.113 PPM |

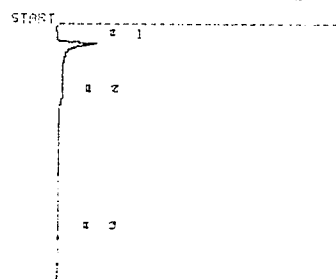
PHOTOVAC



STOP 8 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 19:20
 ANALYSIS # 52 J BYRD, JR
 INTERNAL TEMP 33 DULUTH ANG8
 GAIN 2 021-024 10.5-11

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 1 | 32.5 | 2.0 US |
| UNKNOWN | 2 | 30.5 | 0.1 US |
| UNKNOWN | 3 | 31.5 | 0.1 US |
| UNKNOWN | 4 | 32.5 | 2.0 US |
| UNKNOWN | 5 | 33.5 | 1.0 US |
| UNKNOWN | 6 | 34.5 | 1.022 PPM |
| UNKNOWN | 7 | 35.2 | 0.1 US |
| UNKNOWN | 8 | 120.9 | 273.2 PPM |
| UNKNOWN | 9 | 151.5 | 86.42 PPM |
| UNKNOWN | 10 | 175.5 | 125.3 PPM |
| UNKNOWN | 11 | 177.1 | 100.1 PPM |
| UNKNOWN | 12 | 246.2 | 0.1 PPM |
| UNKNOWN | 13 | 252.1 | 0.1 PPM |
| UNKNOWN | 14 | 223.1 | 132.9 PPM |

PHOTOVAC



STOP 8 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 19:56
 ANALYSIS # 54 J BYRD, JR
 INTERNAL TEMP 33 DULUTH ANG8
 GAIN 2 AIR

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|----------|
| UNKNOWN | 1 | 32.3 | 1.0 US |

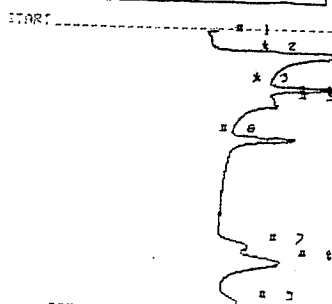
PHOTOVAC

JUL 14 1994 9:10

FIELD: 23
POWER: 43

| SAMPLE | 0.0 | 10.0 |
|---------|-----|-------|
| 0.0 | 0.0 | 0.0 |
| EVENT 3 | 0.0 | 100.0 |
| EVENT 4 | 0.0 | 0.0 |
| EVENT 5 | 0.0 | 0.0 |
| EVENT 6 | 0.0 | 0.0 |
| EVENT 7 | 0.0 | 0.0 |
| EVENT 8 | 0.0 | 0.0 |

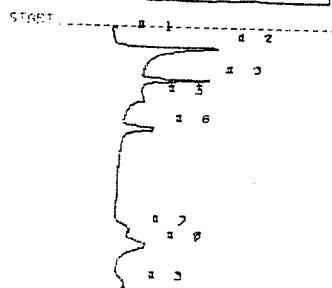
PHOTOVAC



STOP 3 100.0
SAMPLE LIBRARY 1 JUL 14 1994 9:15
ANALYSIS # 3 J BYRD, JR.
INTERNAL TEMP 23 DULUTH ANG
GAIN 10 100 PFB

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|----------|
| UNKNOWN | 2 | 26.1 | 11.1 US |
| UNKNOWN | 3 | 100.0 | 100.0 US |
| UNKNOWN | 4 | 100.0 | 100.0 US |

PHOTOVAC



STOP 3 100.0
SAMPLE LIBRARY 1 JUL 14 1994 9:21
ANALYSIS # 4 J BYRD, JR.
INTERNAL TEMP 23 DULUTH ANG
GAIN 5 100 PFB

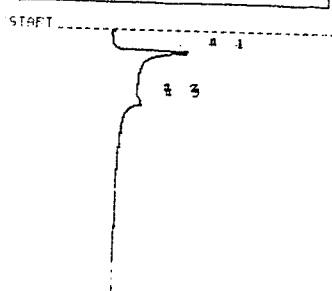
| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|----------|
| UNKNOWN | 2 | 26.1 | 11.1 US |
| UNKNOWN | 3 | 100.0 | 100.0 US |
| UNKNOWN | 4 | 100.0 | 100.0 US |

PHOTOVAC

1 COMPOUND ID # R.T. LIMIT

| | | | |
|-----------|---|-------|-----------|
| BENZENE | 1 | 81.3 | 100.0 PFB |
| TOLUENE | 2 | 150.5 | 100.0 PFB |
| E-BENZENE | 3 | 316.1 | 100.0 PFB |
| MP-XYLENE | 4 | 333.5 | 100.0 PFB |

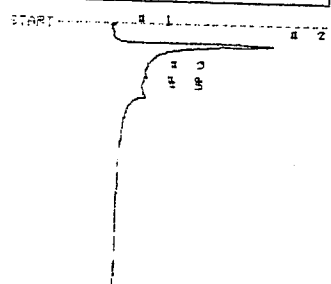
PHOTOVAC



STOP 3 100.0
SAMPLE LIBRARY 1 JUL 14 1994 9:33
ANALYSIS # 5 J BYRD, JR.
INTERNAL TEMP 23 DULUTH ANG
GAIN 5 AIR

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|----------|
| UNKNOWN | 1 | 26.1 | 11.1 US |

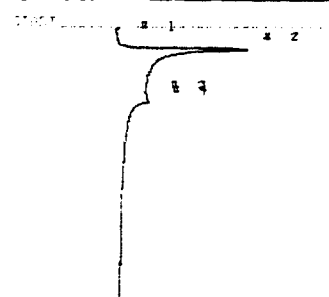
PHOTOVAC



STOP 3 100.0
SAMPLE LIBRARY 1 JUL 14 1994 9:43
ANALYSIS # 6 J BYRD, JR.
INTERNAL TEMP 30 DULUTH ANG
GAIN 5 021-024 2.0-2.5

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|----------|
| UNKNOWN | 2 | 26.1 | 11.1 US |

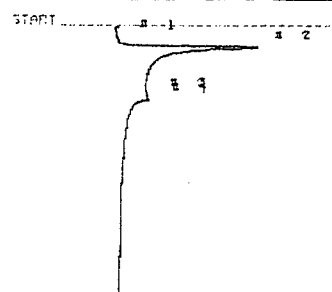
PHOTOVAC



STOP 3 100.0
SAMPLE LIBRARY 1 JUL 14 1994 9:50
ANALYSIS # 8 DULUTH ANG
GAIN 5 021-021 2.0-2.5

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|----------|
| UNKNOWN | 2 | 26.1 | 11.1 US |

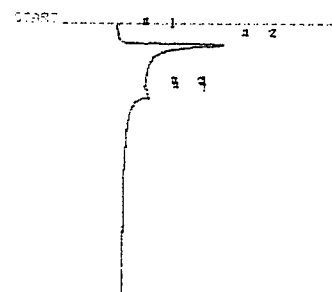
PHOTOVAC



STOP 3 100.0
SAMPLE LIBRARY 1 JUL 14 1994 10:3
ANALYSIS # 8 J BYRD, JR.
INTERNAL TEMP 30 DULUTH ANG
GAIN 5 021-020 10.5-11*

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|----------|
| UNKNOWN | 2 | 26.1 | 11.1 US |

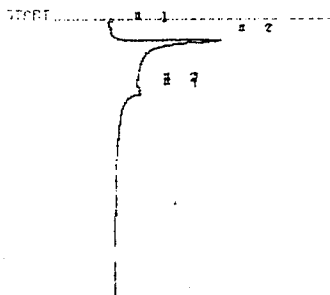
PHOTOVAC



STOP 3 100.0
SAMPLE LIBRARY 1 JUL 14 1994 10:14
ANALYSIS # 9 J BYRD, JR.
INTERNAL TEMP 30 DULUTH ANG
GAIN 5 021-021 6.5-7.0

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|----------|
| UNKNOWN | 2 | 26.1 | 11.1 US |

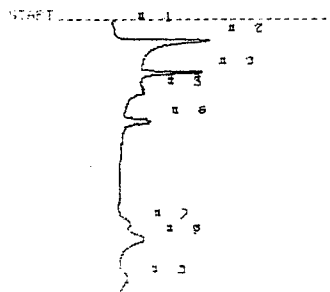
PHOTOVAC



STOP 0 433.0
 SAMPLE LIBRARY 1 JUL 14 1994 10:24
 ANALYSIS # 10 J BYRD, JR.
 INTERNAL TEMP 31 DULUTH ANG
 GAIN 5 021-024 6.5-7.0

COMPOUND NAME PEAK R.T. AREA/WT
 UNKNOWN 2 22.4 0.0 US

PHOTOVAC



STOP 2 433.0
 SAMPLE LIBRARY 1 JUL 14 1994 10:33
 ANALYSIS # 11 J BYRD, JR.
 INTERNAL TEMP 31 DULUTH ANG
 GAIN 5 100 PPB

COMPOUND NAME PEAK R.T. AREA/WT
 UNKNOWN 2 22.4 0.0 US
 BENZENE 2 30.2 24.31 PPB
 TOLUENE 4 153.1 23.31 PPB
 E-BENZENE 2 312.1 23.31 PPB
 M-XYLENE 2 312.1 23.31 PPB

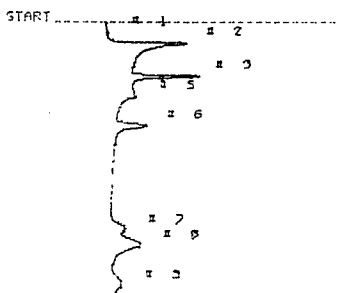
PHOTOVAC

CALIBRATED PEAK 3, BENZENE

SAMPLE LIBRARY 1 JUL 14 1994 10:34
 ANALYSIS # 11 J BYRD, JR.
 INTERNAL TEMP 31 DULUTH ANG
 GAIN 5 100 PPB

COMPOUND NAME PEAK R.T. AREA/WT
 UNKNOWN 2 22.4 0.0 US
 BENZENE 2 30.2 100.0 PPB
 TOLUENE 4 153.1 24.31 PPB
 E-BENZENE 2 312.1 24.31 PPB
 M-XYLENE 2 312.1 105.0 PPB

PHOTOVAC



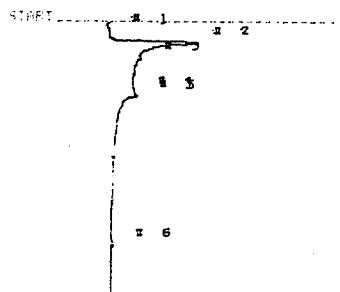
STOP 0 433.0
 SAMPLE LIBRARY 1 JUL 14 1994 11:21
 ANALYSIS # 12 J BYRD, JR.
 INTERNAL TEMP 32 DULUTH ANG
 GAIN 5 100 PPB

COMPOUND NAME PEAK R.T. AREA/WT
 UNKNOWN 2 22.4 0.0 US
 UNKNOWN 2 30.2 24.31 PPB
 UNKNOWN 4 153.1 24.31 PPB
 UNKNOWN 2 312.1 24.31 PPB

PHOTOVAC

1 COMPOUND ID # R.T. LIMIT
 BENZENE 1 32.2 100.0 PPB
 TOLUENE 2 153.7 100.0 PPB
 E-BENZENE 3 313.4 100.0 PPB
 M-XYLENE 1 312.1 100.0 PPB

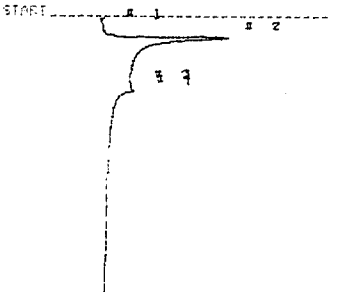
PHOTOVAC



STOP 1 433.0
 SAMPLE LIBRARY 1 JUL 14 1994 11:34
 ANALYSIS # 13 J BYRD, JR.
 INTERNAL TEMP 32 DULUTH ANG
 GAIN 5 AIR

COMPOUND NAME PEAK R.T. AREA/WT
 UNKNOWN 2 22.5 0.0 US

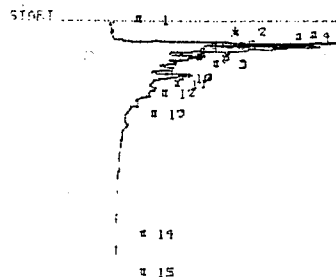
PHOTOVAC



STOP 2 433.0
 SAMPLE LIBRARY 1 JUL 14 1994 11:44
 ANALYSIS # 14 J BYRD, JR.
 INTERNAL TEMP 32 DULUTH ANG
 GAIN 5 021-024 6.5-7.0

COMPOUND NAME PEAK R.T. AREA/WT
 UNKNOWN 2 22.2 0.0 US

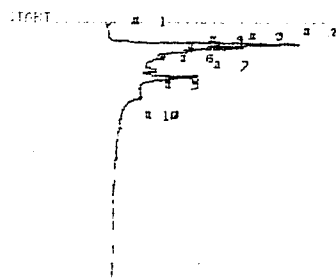
PHOTOVAC



STEP 2 100.0
 SAMPLE LIBRARY 15 JUL 14 1934 11:54
 ANALYSIS # 17 J BYRD, JR.
 INTERNAL TEMP 32 DULUTH ANG
 GAIN 5 021-021 11.5-12

| COMPOUND NAME | PEAK | RT | AREA | PPBP |
|---------------|------|------|------|------|
| UNKNOWN | 1 | 10.1 | 0.0 | US |
| UNKNOWN | 2 | 10.3 | 1.0 | US |
| UNKNOWN | 3 | 11.1 | 0.2 | US |
| UNKNOWN | 4 | 11.3 | 0.2 | US |
| UNKNOWN | 5 | 11.5 | 0.2 | US |
| UNKNOWN | 6 | 11.7 | 0.2 | US |
| UNKNOWN | 7 | 11.9 | 0.2 | US |
| UNKNOWN | 8 | 12.1 | 0.2 | US |
| UNKNOWN | 9 | 12.3 | 0.2 | US |
| UNKNOWN | 10 | 12.5 | 0.2 | US |
| UNKNOWN | 11 | 12.7 | 0.2 | US |
| UNKNOWN | 12 | 12.9 | 0.2 | US |
| UNKNOWN | 13 | 13.1 | 0.2 | US |
| UNKNOWN | 14 | 13.3 | 0.2 | US |
| UNKNOWN | 15 | 13.5 | 0.2 | US |

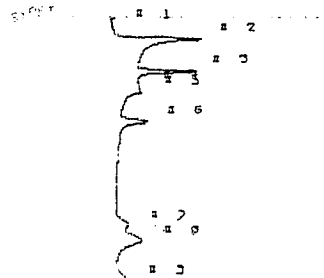
PHOTOVAC



STEP 3 100.0
 SAMPLE LIBRARY 1 JUL 14 1934 12:15
 ANALYSIS # 17 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 5 021-020 6.5-7.0

| COMPOUND NAME | PEAK | RT | AREA | PPBP |
|---------------|------|------|------|------|
| UNKNOWN | 1 | 10.1 | 0.1 | US |
| UNKNOWN | 2 | 10.3 | 1.0 | US |
| UNKNOWN | 3 | 10.5 | 0.1 | US |
| UNKNOWN | 4 | 10.7 | 0.1 | US |
| UNKNOWN | 5 | 10.9 | 0.1 | US |
| UNKNOWN | 6 | 11.1 | 0.1 | US |
| UNKNOWN | 7 | 11.3 | 0.1 | US |
| UNKNOWN | 8 | 11.5 | 0.1 | US |
| UNKNOWN | 9 | 11.7 | 0.1 | US |
| UNKNOWN | 10 | 11.9 | 0.1 | US |

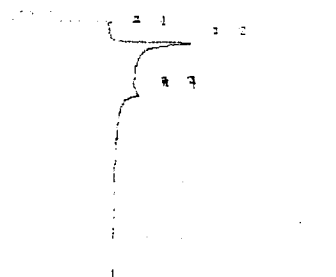
PHOTOVAC



STEP 4 100.0
 SAMPLE LIBRARY 1 JUL 14 1934 12:16
 ANALYSIS # 13 J BYRD, JR.
 INTERNAL TEMP 32 DULUTH ANG
 GAIN 5 100 PPBP

| COMPOUND NAME | PEAK | RT | AREA | PPBP |
|---------------|------|------|------|------|
| UNKNOWN | 1 | 10.1 | 0.0 | US |
| UNKNOWN | 2 | 10.3 | 1.0 | US |
| UNKNOWN | 3 | 10.5 | 0.1 | US |
| UNKNOWN | 4 | 10.7 | 0.1 | US |
| UNKNOWN | 5 | 10.9 | 0.1 | US |
| UNKNOWN | 6 | 11.1 | 0.1 | US |
| UNKNOWN | 7 | 11.3 | 0.1 | US |
| UNKNOWN | 8 | 11.5 | 0.1 | US |
| UNKNOWN | 9 | 11.7 | 0.1 | US |
| UNKNOWN | 10 | 11.9 | 0.1 | US |

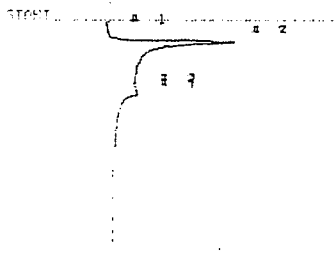
PHOTOVAC



STEP 5 100.0
 SAMPLE LIBRARY 16 JUL 14 1934 12:14
 ANALYSIS # 33 DULUTH ANG
 INTERNAL TEMP 33 021-022 1.5-1.5
 GAIN 5 021-022 1.5-1.5

| COMPOUND NAME | PEAK | RT | AREA | PPBP |
|---------------|------|------|------|------|
| UNKNOWN | 1 | 10.1 | 0.0 | US |

PHOTOVAC



STEP 6 100.0
 SAMPLE LIBRARY 1 JUL 14 1934 12:26
 ANALYSIS # 33 DULUTH ANG
 INTERNAL TEMP 33 021-020 1.5-2.0
 GAIN 5 021-020 1.5-2.0

| COMPOUND NAME | PEAK | RT | AREA | PPBP |
|---------------|------|------|------|------|
| UNKNOWN | 1 | 10.1 | 0.0 | US |

PHOTOVAC

CALIBRATED PEAK 0, BENZENE
 SAMPLE LIBRARY 1 JUL 14 1934 12:27
 ANALYSIS # 13 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 5 100 PPBP

| COMPOUND NAME | PEAK | RT | AREA | PPBP |
|---------------|------|------|------|------|
| UNKNOWN | 1 | 10.1 | 0.0 | US |
| UNKNOWN | 2 | 10.3 | 1.0 | US |
| UNKNOWN | 3 | 10.5 | 0.1 | US |
| UNKNOWN | 4 | 10.7 | 0.1 | US |
| UNKNOWN | 5 | 10.9 | 0.1 | US |
| UNKNOWN | 6 | 11.1 | 0.1 | US |
| UNKNOWN | 7 | 11.3 | 0.1 | US |
| UNKNOWN | 8 | 11.5 | 0.1 | US |
| UNKNOWN | 9 | 11.7 | 0.1 | US |
| UNKNOWN | 10 | 11.9 | 0.1 | US |

PHOTOVAC

STEP 1 15:52
SAMPLE LIBRARY 1 JUL 14 1994 19:52
ANALYSIS # 28 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG5
GAIN 5 021-016 2.0-2.5
CALIBRATION NAME PEAK DUT. GREENKOPF
PEAK # 1 102.2

PHOTOVAC

STEP 1 15:52
SAMPLE LIBRARY 1 JUL 14 1994 15:52
ANALYSIS # 28 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG5
GAIN 5 021-016 6.5-7.0
CALIBRATION NAME PEAK DUT. GREENKOPF
PEAK # 1 102.2

PHOTOVAC

STEP 1 15:20
SAMPLE LIBRARY 1 JUL 14 1994 15:20
ANALYSIS # 30 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG5
GAIN 5 021-016 10.5-11
CALIBRATION NAME PEAK DUT. GREENKOPF
PEAK # 1 102.2

PHOTOVAC

STEP 1 15:20
SAMPLE LIBRARY 1 JUL 14 1994 15:20
ANALYSIS # 31 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG5
GAIN 5 021-013 6.5-7.0
CALIBRATION NAME PEAK DUT. GREENKOPF
PEAK # 1 102.2

PHOTOVAC

STEP 1 15:20
SAMPLE LIBRARY 1 JUL 14 1994 15:20
ANALYSIS # 32 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG5
GAIN 5 021-013 10.5-11
CALIBRATION NAME PEAK DUT. GREENKOPF
PEAK # 1 102.2

PHOTOVAC

STEP 1 15:52
SAMPLE LIBRARY 1 JUL 14 1994 15:52
ANALYSIS # 33 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG5
GAIN 5 100 PFB
CALIBRATION NAME PEAK DUT. GREENKOPF
PEAK # 1 102.2
PEAK # 2 122.6 PFB
PEAK # 3 105.2 PFB
PEAK # 4 102.1 PFB
PEAK # 5 161.1 PFB

PHOTOVAC

CALIBRATED PEAK 3, BENZENE
SAMPLE LIBRARY 1 JUL 14 1994 15:54
ANALYSIS # 33 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG5
GAIN 5 100 PFB
CALIBRATION NAME PEAK DUT. GREENKOPF
PEAK # 1 102.2
PEAK # 2 108.2 PFB
PEAK # 3 102.1 PFB
PEAK # 4 149.6 PFB

PHOTOVAC

STEP 1 16:06
SAMPLE LIBRARY 1 JUL 14 1994 16:06
ANALYSIS # 34 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG5
GAIN 5 100 PFB
CALIBRATION NAME PEAK DUT. GREENKOPF
PEAK # 1 102.2
PEAK # 2 108.2 PFB
PEAK # 3 102.1 PFB
PEAK # 4 149.6 PFB

PHOTOVAC

| 1 | CONFOUND | ID # | R.T. | LIMIT |
|-----------|----------|-------|-----------|-------|
| BENZENE | 1 | 01.5 | 100.0 PFB | |
| TOLUENE | 2 | 150.7 | 100.0 PFB | |
| E-BENZENE | 3 | 310.2 | 100.0 PFB | |
| MP-XYLENE | 4 | 341.6 | 100.0 PFB | |

PHOTOVAC

SAMPLE LIBRARY 1 JUL 14 1994 16:19
ANALYSIS # 35 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANGOS
GAIN 5 ~~100 PFB~~ **41R B+NR**

PHOTOVAC

SAMPLE LIBRARY 1 JUL 14 1994 17:19
ANALYSIS # 36 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANGOS
GAIN 5 021-015 1.5-2.0

PHOTOVAC

SAMPLE LIBRARY 1 JUL 14 1994 17:19
ANALYSIS # 37 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANGOS
GAIN 5 021-015 6.5-7.0

PHOTOVAC

SAMPLE LIBRARY 1 JUL 14 1994 17:20
ANALYSIS # 38 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANGOS
GAIN 5 021-015 10.5-11

PHOTOVAC

SAMPLE LIBRARY 1 JUL 14 1994 17:42
ANALYSIS # 39 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANGOS
GAIN 5 021-015 13-13.5

PHOTOVAC

SAMPLE LIBRARY 1 JUL 14 1994 17:51
ANALYSIS # 40 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANGOS
GAIN 5 100 PFB

PHOTOVAC

SAMPLE LIBRARY 1 JUL 14 1994 17:52
ANALYSIS # 41 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANGOS
GAIN 5 100 PFB

PHOTOVAC

SAMPLE LIBRARY 1 JUL 14 1994 19:4
ANALYSIS # 41 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANGOS
GAIN 5 AIR

PHOTOVAC

JUL 15 1994 3:23

FIELD: 30
POWER: 44

| SAMPLE | 0.0 | 10.0 |
|---------|-----|-------|
| CAL | 0.0 | 0.0 |
| EVENT 3 | 0.0 | 100.0 |
| EVENT 4 | 0.0 | 0.0 |
| EVENT 5 | 0.0 | 0.0 |
| EVENT 6 | 0.0 | 0.0 |
| EVENT 7 | 0.0 | 0.0 |
| EVENT 8 | 0.0 | 0.0 |

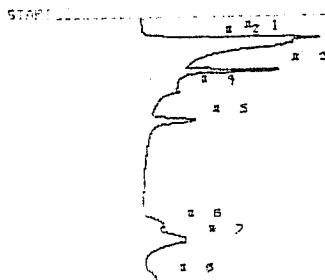
PHOTOVAC

1 CONFOUND ID # R.T. LIMIT

| | | | | |
|--------------|---|-------|-------|-----|
| BENZENE | 1 | 80.1 | 100.0 | PPB |
| TOLUENE | 2 | 155.3 | 100.0 | PPB |
| ETHYLBENZENE | 3 | 311.6 | 100.0 | PPB |
| MP-XYLENE | 4 | 324.4 | 100.0 | PPB |

PHOTOVAC

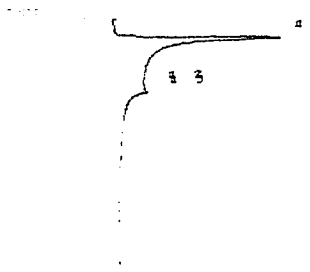
PHOTOVAC



STEP 1 100.0
SAMPLE LIBRARY 1 JUL 15 1994 9:33
ANALYSIS # 1 J BYRD, JR.
INTERNAL TEMP 23 DULUTH ANGOS
GAIN 5 100 PPB

CONFOUND NAME PEAK LIMIT
BENZENE 1 80.1 100.0 PPB
TOLUENE 2 155.3 100.0 PPB
ETHYLBENZENE 3 311.6 100.0 PPB
MP-XYLENE 4 324.4 100.0 PPB

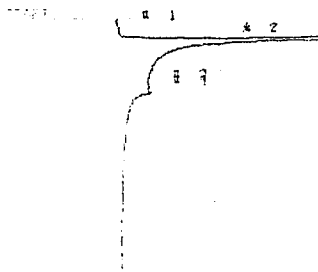
PHOTOVAC



STEP 1 100.0
SAMPLE LIBRARY 1 JUL 15 1994 3:59
ANALYSIS # 3 J BYRD, JR.
INTERNAL TEMP 30 DULUTH ANGOS
GAIN 5 AIR

CONFOUND NAME PEAK LIMIT
BENZENE 1 80.1 100.0 PPB
TOLUENE 2 155.3 100.0 PPB
ETHYLBENZENE 3 311.6 100.0 PPB
MP-XYLENE 4 324.4 100.0 PPB

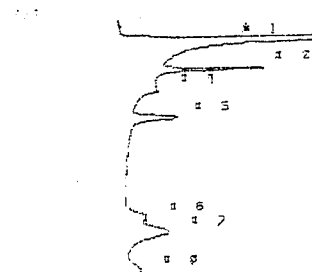
PHOTOVAC



STEP 1 100.0
SAMPLE LIBRARY 1 JUL 15 1994 10:56
ANALYSIS # 6 J BYRD, JR.
INTERNAL TEMP 31 DULUTH ANGOS
GAIN 5 021-012 10.5-11

CONFOUND NAME PEAK LIMIT
BENZENE 1 80.1 100.0 PPB
TOLUENE 2 155.3 100.0 PPB
ETHYLBENZENE 3 311.6 100.0 PPB
MP-XYLENE 4 324.4 100.0 PPB

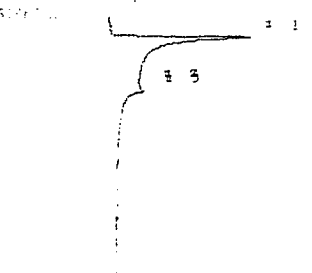
PHOTOVAC



STEP 1 100.0
SAMPLE LIBRARY 1 JUL 15 1994 9:45
ANALYSIS # 2 J BYRD, JR.
INTERNAL TEMP 30 DULUTH ANGOS
GAIN 5 100 PPB

CONFOUND NAME PEAK LIMIT
BENZENE 1 80.1 100.0 PPB
TOLUENE 2 155.3 100.0 PPB
ETHYLBENZENE 3 311.6 100.0 PPB
MP-XYLENE 4 324.4 100.0 PPB

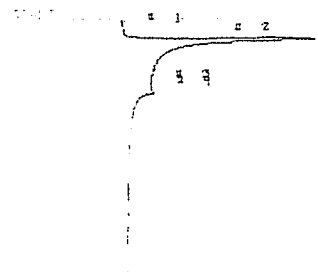
PHOTOVAC



STEP 1 100.0
SAMPLE LIBRARY 1 JUL 15 1994 10:35
ANALYSIS # 4 J BYRD, JR.
INTERNAL TEMP 31 DULUTH ANGOS
GAIN 5 021-012 2.0-2.5

CONFOUND NAME PEAK LIMIT
BENZENE 1 80.1 100.0 PPB
TOLUENE 2 155.3 100.0 PPB
ETHYLBENZENE 3 311.6 100.0 PPB
MP-XYLENE 4 324.4 100.0 PPB

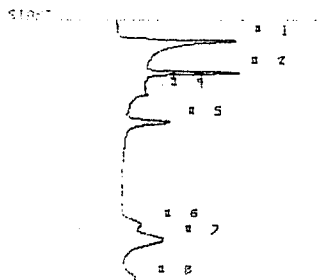
PHOTOVAC



STEP 1 100.0
SAMPLE LIBRARY 1 JUL 15 1994 11:2
ANALYSIS # 2 J BYRD, JR.
INTERNAL TEMP 32 DULUTH ANGOS
GAIN 5 021-012 14.5-15

CONFOUND NAME PEAK LIMIT
BENZENE 1 80.1 100.0 PPB
TOLUENE 2 155.3 100.0 PPB
ETHYLBENZENE 3 311.6 100.0 PPB
MP-XYLENE 4 324.4 100.0 PPB

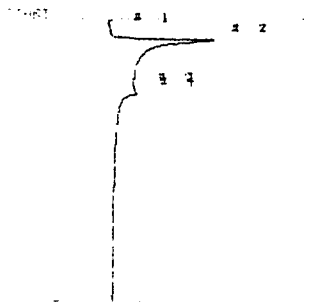
PHOTOVAC



TEMP 7 100.0
SAMPLE LIBRARY 1 JUL 15 1994 11:31
ANALYSIS # 8 J BYRD, JR.
INTERNAL TEMP 32 DULUTH ANG
GAIN 5 100 PPB

CONCENTRATION NAME PEAK 1 2 3 4 5 6 7
100.0 PPB
100.1 PPB

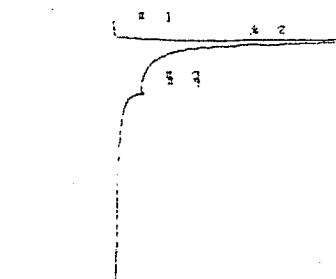
PHOTOVAC



TEMP 7 100.0
SAMPLE LIBRARY 1 JUL 15 1994 12:47
ANALYSIS # 10 J BYRD, JR.
INTERNAL TEMP 33 DULUTH ANG
GAIN 5 021-026M 2-2.5

CONCENTRATION NAME PEAK 1 2 3 4 5 6 7

PHOTOVAC



TEMP 7 100.0
SAMPLE LIBRARY 1 JUL 15 1994 13:16
ANALYSIS # 13 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 5 021-026M 16.5-17

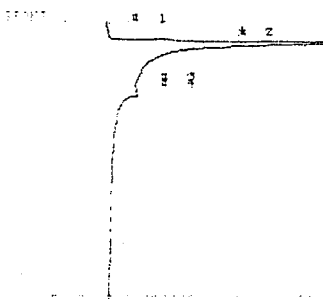
CONCENTRATION NAME PEAK 1 2 3 4 5 6 7

PHOTOVAC

CALIBRATED PEAK 2, BENTENE
SAMPLE LIBRARY 1 JUL 15 1994 11:32
ANALYSIS # 8 J BYRD, JR.
INTERNAL TEMP 32 DULUTH ANG
GAIN 5 100 PPB

CONCENTRATION NAME PEAK 1 2 3 4 5 6 7
100.0 PPB
100.6 PPB
117.5 PPB
217.3 PPB

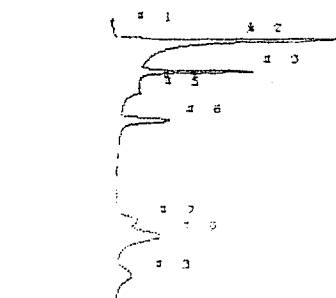
PHOTOVAC



TEMP 7 100.0
SAMPLE LIBRARY 1 JUL 15 1994 12:57
ANALYSIS # 11 J BYRD, JR.
INTERNAL TEMP 33 DULUTH ANG
GAIN 5 021-026M 8.5-9

CONCENTRATION NAME PEAK 1 2 3 4 5 6 7

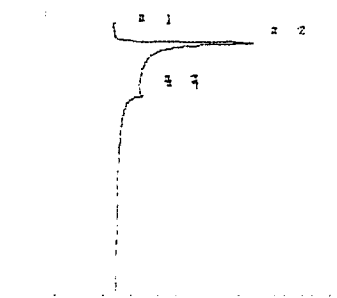
PHOTOVAC



TEMP 7 100.0
SAMPLE LIBRARY 1 JUL 15 1994 13:26
ANALYSIS # 14 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 5 100 PPB

CONCENTRATION NAME PEAK 1 2 3 4 5 6 7
114.2 PPB
116.2 PPB
120.0 PPB
227.6 PPB

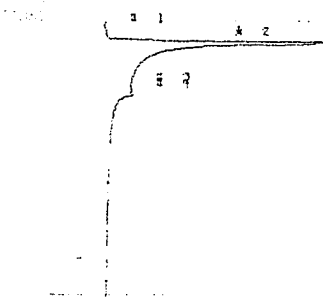
PHOTOVAC



TEMP 7 100.0
SAMPLE LIBRARY 1 JUL 15 1994 11:42
ANALYSIS # 9 J BYRD, JR.
INTERNAL TEMP 32 DULUTH ANG
GAIN 5 AIR

CONCENTRATION NAME PEAK 1 2 3 4 5 6 7

PHOTOVAC



TEMP 7 100.0
SAMPLE LIBRARY 1 JUL 15 1994 13:7
ANALYSIS # 12 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 5 021-026M 11-11.5

CONCENTRATION NAME PEAK 1 2 3 4 5 6 7

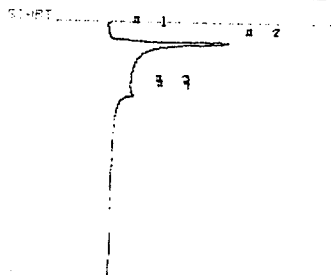
PHOTOVAC

CALIBRATED PEAK 3, BENZENE

SAMPLE LIBRARY 1 JUL 15 1934 13:28
ANALYSIS # 14 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANGSS
GAIN 5 100 PFB

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 2 | 51.8 | 6.5 MC |
| BENZENE | 3 | 80.1 | 100.0 PFB |
| TOLUENE | 4 | 100.3 | 101.3 PFB |
| BROMOBENZENE | 5 | 212.8 | 194.1 PFB |

PHOTOVAC



SAMPLE LIBRARY 1 JUL 15 1934 13:38
ANALYSIS # 15 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANGSS
GAIN 5 AIR

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|----------|
| UNKNOWN | 1 | 51.1 | 10.2 MC |

PHOTOVAC

JUL 18 1994 8:3

FIELD: 30
POWER: 44

| SAMPLE | 8.0 | 10.0 |
|---------|-----|-------|
| CAL | 0.0 | 0.0 |
| EVENT 3 | 0.0 | 100.0 |
| EVENT 4 | 0.0 | 0.0 |
| EVENT 5 | 0.0 | 0.0 |
| EVENT 6 | 0.0 | 0.0 |
| EVENT 7 | 0.0 | 0.0 |
| EVENT 8 | 0.0 | 0.0 |

PHOTOVAC

1 COMPOUND ID # R.T. LIMIT

| COMPOUND | ID # | R.T. | LIMIT |
|--------------|------|-------|-----------|
| BENZENE | 1 | 77.7 | 100.0 PFB |
| TOLUENE | 2 | 150.3 | 100.0 PFB |
| ETHYLBENZENE | 3 | 300.5 | 100.0 PFB |
| M-XYLENE | 4 | 105.4 | 100.0 PFB |

PHOTOVAC

START 1 2

8 7
x 5

STOP 8 450.3
SAMPLE LIBRARY 1 JUL 18 1994 11:49
ANALYSIS # 5 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 017-0168H 1-5-2

COMPOUND NAME PEAK R.T. AREA-PPM
UNKNOWN 2 31.1 3.5 05

PHOTOVAC

START 1 2

1
2
3
4
5
6
7

STOP 8 450.3
SAMPLE LIBRARY 1 JUL 18 1994 10:19
ANALYSIS # 1 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 2 100 PFB

COMPOUND NAME PEAK R.T. AREA-PPM
UNKNOWN 1 21.0 425.1 PFB
BENZENE 2 77.6 60.10 PFB
TOLUENE 3 150.7 100.10 PFB
ETHYLBENZENE 4 300.5 100.10 PFB
M-XYLENE 5 105.4 200.3 PFB
UNKNOWN 6 300.1 201.9 PFB

PHOTOVAC

START 1 2

8 7

STOP 8 450.3
SAMPLE LIBRARY 1 JUL 18 1994 11:2
ANALYSIS # 3 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 AIR

COMPOUND NAME PEAK R.T. AREA-PPM
UNKNOWN 2 31.2 4.5 05

PHOTOVAC

START 1 2

8 8

STOP 8 450.3
SAMPLE LIBRARY 1 JUL 18 1994 11:54
ANALYSIS # 6 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 017-0168H 5.5-6

COMPOUND NAME PEAK R.T. AREA-PPM
UNKNOWN 1 21.0 425.1 PFB

PHOTOVAC

START 1 2

1
2
3
4
5
6
7
8

STOP 8 450.3
SAMPLE LIBRARY 1 JUL 18 1994 10:53
ANALYSIS # 2 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 100 PFB

COMPOUND NAME PEAK R.T. AREA-PPM
UNKNOWN 1 21.0 425.1 PFB
BENZENE 2 77.6 60.10 PFB
TOLUENE 3 150.7 100.10 PFB
ETHYLBENZENE 4 300.5 100.10 PFB
M-XYLENE 5 105.4 200.3 PFB
UNKNOWN 6 300.1 201.9 PFB

PHOTOVAC

START 1 2

1
2
3
4
5
6
7
8

STOP 8 450.3
SAMPLE LIBRARY 1 JUL 18 1994 11:15
ANALYSIS # 4 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 AIR

COMPOUND NAME PEAK R.T. AREA-PPM
UNKNOWN 1 21.0 425.1 PFB

PHOTOVAC

START 1 2

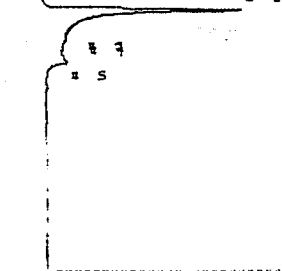
8 8

STOP 8 450.3
SAMPLE LIBRARY 1 JUL 18 1994 12:12
ANALYSIS # 7 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 017-0168H 5.5-10

COMPOUND NAME PEAK R.T. AREA-PPM
UNKNOWN 1 21.0 425.1 PFB

PHOTOVAC

START 1 2



STOP 1 100.0
SAMPLE LIBRARY 1 JUL 18 1994 12:36
ANALYSIS # 8 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 017-015BH 1-1.5

COMPOUND NAME PEAK R.T. AREA
UNKNOWN 2 21.1 4.5 1.5

PHOTOVAC

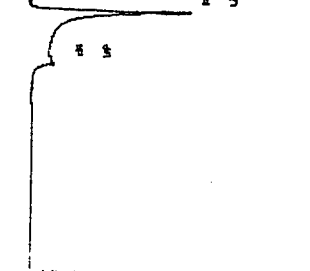
CALIBRATED PEAK 3, BENZENE

SAMPLE LIBRARY 1 JUL 18 1994 12:58
ANALYSIS # 10 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 PFB

COMPOUND NAME PEAK R.T. AREA
UNKNOWN 1 20.1 7.4 1.0
BENZENE 2 21.6 100.0 PFB
TOLUENE 3 22.3 20.0 1.0
ETHYLBENZENE 4 23.5 41.0 1.0
METHYLENE 5 24.2 212.0 PFB

PHOTOVAC

START 1 2

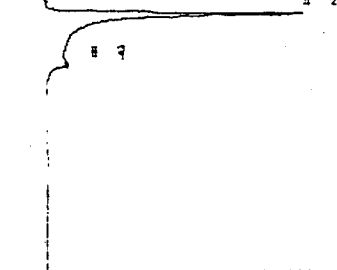


STOP 1 100.0
SAMPLE LIBRARY 1 JUL 18 1994 13:20
ANALYSIS # 12 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 AIR

COMPOUND NAME PEAK R.T. AREA
UNKNOWN 2 21.1 4.5 1.5

PHOTOVAC

START 1 2

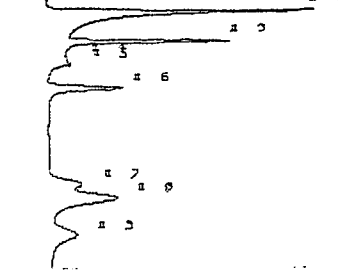


STOP 1 100.0
SAMPLE LIBRARY 1 JUL 18 1994 12:46
ANALYSIS # 9 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 017-015BH 5.5-6

COMPOUND NAME PEAK R.T. AREA
UNKNOWN 1 21.1 4.5 1.5

PHOTOVAC

START 1 2

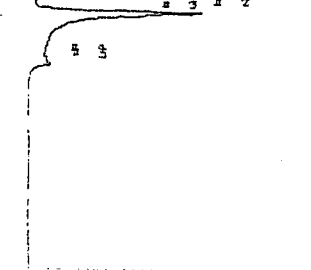


STOP 1 100.0
SAMPLE LIBRARY 1 JUL 18 1994 13: 9
ANALYSIS # 11 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 PFB

COMPOUND NAME PEAK R.T. AREA
UNKNOWN 1 20.1 7.4 1.0
BENZENE 2 21.6 100.0 PFB
TOLUENE 3 22.3 20.0 1.0
ETHYLBENZENE 4 23.5 41.0 1.0
METHYLENE 5 24.2 212.0 PFB

PHOTOVAC

START 1 2

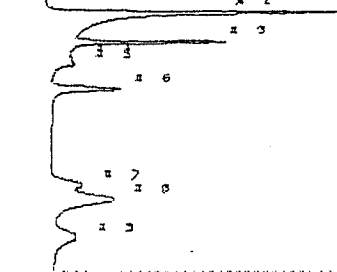


STOP 1 100.0
SAMPLE LIBRARY 1 JUL 18 1994 13:28
ANALYSIS # 13 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 017-015BH 5.5-6

COMPOUND NAME PEAK R.T. AREA
UNKNOWN 1 21.1 4.5 1.5

PHOTOVAC

START 1 2



STOP 1 100.0
SAMPLE LIBRARY 1 JUL 18 1994 12:56
ANALYSIS # 10 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 PFB

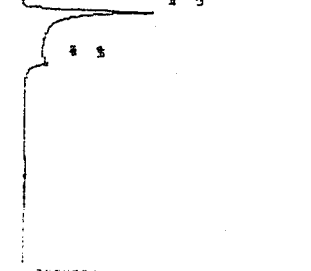
COMPOUND NAME PEAK R.T. AREA
UNKNOWN 1 20.1 7.4 1.0
BENZENE 2 21.6 100.0 PFB
TOLUENE 3 22.3 20.0 1.0
ETHYLBENZENE 4 23.5 41.0 1.0
METHYLENE 5 24.2 212.0 PFB

PHOTOVAC

| 1 | COMPOUND | ID # | R.T. | LIMIT |
|--------------|----------|-------|-----------|-------|
| BENZENE | 1 | 22.6 | 100.0 PFB | |
| TOLUENE | 2 | 150.3 | 100.0 PFB | |
| ETHYLBENZENE | 3 | 300.0 | 100.0 PFB | |
| METHYLENE | 4 | 323.0 | 100.0 PFB | |

PHOTOVAC

START 1 2



STOP 1 100.0
SAMPLE LIBRARY 1 JUL 18 1994 14:43
ANALYSIS # 14 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 017-015BH 5-5.5

COMPOUND NAME PEAK R.T. AREA
UNKNOWN 1 21.1 4.5 1.5

PHOTOVAC

START 1 1 2

1 3

STOP 1 150.0
SAMPLE LIBRARY 1 JUL 18 1994 14:52
ANALYSIS # 15 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG'S
GAIN 10 012-0138H 5.5-6

COMPOUND NAME PEAK R.T. AREA

UNKNOWN 1 150.0 1.5 100
UNKNOWN 2 150.0 1.5 100

PHOTOVAC

START 1 1 2

1 3

A-BOT

SAMPLE LIBRARY 1 JUL 18 1994 15:33
ANALYSIS # 16 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG'S
GAIN 10 012-0138H 5.5-10

COMPOUND NAME PEAK R.T. AREA

UNKNOWN 1 150.0 1.5 100

SAMPLE LIBRARY 1 JUL 18 1994 15:35
ANALYSIS # 17 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG'S
GAIN 10 012-0138H 2.5-10

COMPOUND NAME PEAK R.T. AREA

UNKNOWN 1 150.0 1.5 100

PHOTOVAC

START 1 1 2

1 3

STOP 1 150.0
SAMPLE LIBRARY 1 JUL 18 1994 15:21
ANALYSIS # 16 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG'S
GAIN 10 012-0138H 2-2.5

COMPOUND NAME PEAK R.T. AREA

UNKNOWN 1 150.0 1.5 100

PHOTOVAC

START 1 1 2

1 3

SAMPLE LIBRARY 1 JUL 18 1994 15:44
ANALYSIS # 18 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG'S
GAIN 10 012-0138H 3.5-10

COMPOUND NAME PEAK R.T. AREA

UNKNOWN 1 150.0 1.5 100

PHOTOVAC

START 1 1 2

1 3

1 6

1 7

1 8

1 9

1 10

STOP 1 150.0
SAMPLE LIBRARY 1 JUL 18 1994 15:53
ANALYSIS # 19 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG'S
GAIN 10 100 FFB

COMPOUND NAME PEAK R.T. AREA

UNKNOWN 1 150.0 1.5 100
BENZENE 2 150.0 1.5 100
TOLUENE 3 150.0 1.5 100
ETHYL BENZENE 4 150.0 1.5 100
STYRENE 5 150.0 1.5 100

150.1 FFB

PHOTOVAC

CALIBRATED PEAK 3, BENZENE

SAMPLE LIBRARY 1 JUL 18 1994 15:54
ANALYSIS # 19 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG'S
GAIN 10 100 FFB

COMPOUND NAME PEAK R.T. AREA

UNKNOWN 1 150.0 1.5 100
BENZENE 2 150.0 1.5 100
TOLUENE 3 150.0 1.5 100
ETHYL BENZENE 4 150.0 1.5 100
STYRENE 5 150.0 1.5 100

150.1 FFB

PHOTOVAC

START 1 1 2

1 3

SAMPLE LIBRARY 1 JUL 18 1994 16: 6
ANALYSIS # 20 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG'S
GAIN 10 AIR

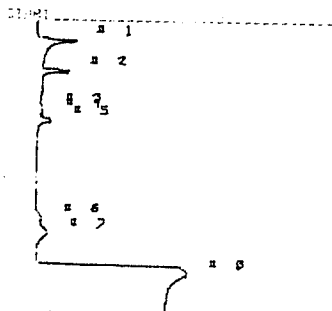
PHOTOVAC

JUL 13 1994 2:20

FIELD: 30
POWER: 42

| SAMPLE | 0.0 | 10.0 |
|---------|-----|-------|
| CAL | 0.0 | 0.0 |
| EVENT 3 | 0.0 | 100.0 |
| EVENT 4 | 0.0 | 0.0 |
| EVENT 5 | 0.0 | 0.0 |
| EVENT 6 | 0.0 | 0.0 |
| EVENT 7 | 0.0 | 0.0 |
| EVENT 8 | 0.0 | 0.0 |

PHOTOVAC



STOP 4 450.0
SAMPLE LIBRARY 1 JUL 13 1994 9:28
ANALYSIS # 2 J BYRD, JR.
INTERNAL TEMP 32 DULUTH ANG
GAIN 10 100 PPB

COMPOUND NAME PEAK # T. RET. TIME

| COMPOUND | 1 | 2 | 5 | 6 | 7 | 8 |
|-----------|---|---|---|---|---|---|
| BENZENE | 1 | 2 | 5 | 6 | 7 | 8 |
| TOLUENE | 1 | 2 | 5 | 6 | 7 | 8 |
| E-BENZENE | 1 | 2 | 5 | 6 | 7 | 8 |
| PF-XYLENE | 1 | 2 | 5 | 6 | 7 | 8 |

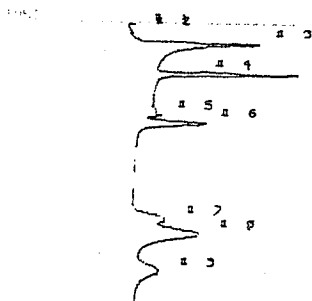
PHOTOVAC

JUL 13 1994 2:23

FIELD: 30
POWER: 43

| SAMPLE | 0.0 | 10.0 |
|---------|-----|-------|
| CAL | 0.0 | 0.0 |
| EVENT 3 | 0.0 | 100.0 |
| EVENT 4 | 0.0 | 0.0 |
| EVENT 5 | 0.0 | 0.0 |
| EVENT 6 | 0.0 | 0.0 |
| EVENT 7 | 0.0 | 0.0 |
| EVENT 8 | 0.0 | 0.0 |

PHOTOVAC

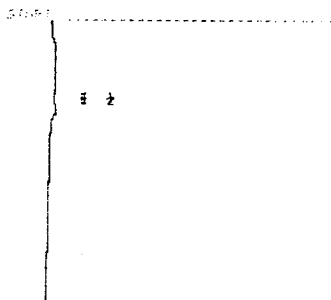


STOP 1 450.0
SAMPLE LIBRARY 1 JUL 13 1994 9:30
ANALYSIS # 3 J BYRD, JR.
INTERNAL TEMP 33 DULUTH ANG
GAIN 10 100 PPB

COMPOUND NAME PEAK # T. RET. TIME

| COMPOUND | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-----------|---|---|---|---|---|---|---|---|
| BENZENE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| TOLUENE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| E-BENZENE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| PF-XYLENE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

PHOTOVAC



STOP 3 450.0
SAMPLE LIBRARY 1 JUL 13 1994 2:32
ANALYSIS # 1 J BYRD, JR.
INTERNAL TEMP 25 DULUTH ANG
GAIN 2 AIR

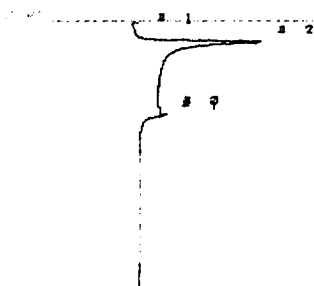
COMPOUND NAME PEAK # T. RET. TIME

PHOTOVAC

1 COMPOUND -ID # P.T. LIMIT

| COMPOUND | 1 | 2 | 3 | 4 |
|-----------|---|-------|-------|-----|
| BENZENE | 1 | 20.6 | 100.0 | PPB |
| TOLUENE | 2 | 156.3 | 100.0 | PPB |
| E-BENZENE | 3 | 307.4 | 100.0 | PPB |
| PF-XYLENE | 4 | 323.6 | 100.0 | PPB |

PHOTOVAC

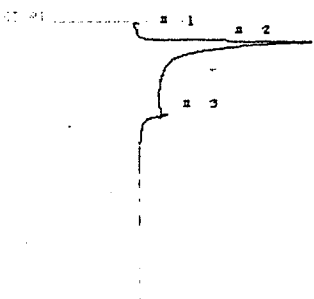


STOP 4 450.0
SAMPLE LIBRARY 1 JUL 13 1994 9:51
ANALYSIS # 4 J BYRD, JR.
INTERNAL TEMP 33 DULUTH ANG
GAIN 10 AIR

COMPOUND NAME PEAK # T. RET. TIME

COMPOUND NAME PEAK # T. RET. TIME

PHOTOVAC

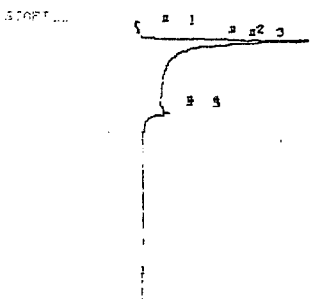


STOP 5 450.0
SAMPLE LIBRARY 1 JUL 13 1994 10:3
ANALYSIS # 5 J BYRD, JR.
INTERNAL TEMP 33 DULUTH ANG
GAIN 10 012-0148H 2-2.5

COMPOUND NAME PEAK # T. RET. TIME

COMPOUND NAME PEAK # T. RET. TIME

PHOTOVAC



STOP 6 450.0
SAMPLE LIBRARY 1 JUL 13 1994 10:14
ANALYSIS # 6 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 012-0148H 4.5-5

COMPOUND NAME PEAK # T. RET. TIME

COMPOUND NAME PEAK # T. RET. TIME

PHOTOVAC

STOP # 480.1
SAMPLE LIBRARY 1 JUL 13 1994 10:55
ANALYSIS # 10 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 012-012BH 5.5-10

COMPOUND NAME TEMP (°C) RESPONSE
BENZENE 100.0 100.0 PPF
TOLUENE 100.0 100.0 PPF
E-BENZENE 100.0 100.0 PPF
P-XYLENE 100.0 100.0 PPF
O-XYLENE 100.0 100.0 PPF

PHOTOVAC

STOP # 480.1

SAMPLE LIBRARY 1 JUL 13 1994 10:52
ANALYSIS # 8 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 012-012BH 2-2.5

COMPOUND NAME TEMP (°C) RESPONSE
BENZENE 100.0 100.0 PPF
TOLUENE 100.0 100.0 PPF
E-BENZENE 100.0 100.0 PPF
P-XYLENE 100.0 100.0 PPF
O-XYLENE 100.0 100.0 PPF

PHOTOVAC

STOP # 480.1

SAMPLE LIBRARY 1 JUL 13 1994 11:2
ANALYSIS # 9 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 012-012BH 5.5-6

COMPOUND NAME TEMP (°C) RESPONSE
BENZENE 100.0 100.0 PPF
TOLUENE 100.0 100.0 PPF
E-BENZENE 100.0 100.0 PPF
P-XYLENE 100.0 100.0 PPF
O-XYLENE 100.0 100.0 PPF

PHOTOVAC

STOP # 480.1

SAMPLE LIBRARY 1 JUL 13 1994 11:13
ANALYSIS # 10 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 100 PPF

COMPOUND NAME TEMP (°C) RESPONSE
BENZENE 100.0 100.0 PPF
TOLUENE 100.0 100.0 PPF
E-BENZENE 100.0 100.0 PPF
P-XYLENE 100.0 100.0 PPF
O-XYLENE 100.0 100.0 PPF

PHOTOVAC

CALIBRATED PEAK 3, BENZENE

SAMPLE LIBRARY 1 JUL 13 1994 11:14
ANALYSIS # 10 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 100 PPF

COMPOUND NAME TEMP (°C) RESPONSE
BENZENE 100.0 100.0 PPF
TOLUENE 100.0 100.0 PPF
E-BENZENE 100.0 100.0 PPF
P-XYLENE 100.0 100.0 PPF
O-XYLENE 100.0 100.0 PPF

PHOTOVAC

1 COMPOUND ID # R.T. LIMIT

| COMPOUND | ID # | R.T. | LIMIT |
|-----------|------|-------|-----------|
| BENZENE | 1 | 70.5 | 100.0 PPF |
| TOLUENE | 2 | 156.1 | 100.0 PPF |
| E-BENZENE | 3 | 302.0 | 100.0 PPF |
| P-XYLENE | 4 | 323.2 | 100.0 PPF |
| O-XYLENE | 5 | 305.3 | 100.0 PPF |

PHOTOVAC

STOP # 480.1

SAMPLE LIBRARY 1 JUL 13 1994 11:26
ANALYSIS # 11 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 AIR

COMPOUND NAME TEMP (°C) RESPONSE
BENZENE 100.0 100.0 PPF
TOLUENE 100.0 100.0 PPF
E-BENZENE 100.0 100.0 PPF
P-XYLENE 100.0 100.0 PPF
O-XYLENE 100.0 100.0 PPF

PHOTOVAC

STOP # 480.1

SAMPLE LIBRARY 1 JUL 13 1994 11:40
ANALYSIS # 12 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 012-012BH 5.5-10

COMPOUND NAME TEMP (°C) RESPONSE
BENZENE 100.0 100.0 PPF
TOLUENE 100.0 100.0 PPF
E-BENZENE 100.0 100.0 PPF
P-XYLENE 100.0 100.0 PPF
O-XYLENE 100.0 100.0 PPF

PHOTOVAC

STOP # 480.1

SAMPLE LIBRARY 1 JUL 13 1994 11:50
ANALYSIS # 13 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 012-012BH 2-2.5

COMPOUND NAME TEMP (°C) RESPONSE
BENZENE 100.0 100.0 PPF
TOLUENE 100.0 100.0 PPF
E-BENZENE 100.0 100.0 PPF
P-XYLENE 100.0 100.0 PPF
O-XYLENE 100.0 100.0 PPF

PHOTOVAC

SAMPLE LIBRARY 1 JUL 13 1994 12:1
ANALYSIS # 14 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 017-0118H 3.5-6

PHOTOVAC

CALIBRATED PEAK 3, PENZENE

SAMPLE LIBRARY 1 JUL 13 1994 12:53
ANALYSIS # 16 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 PFB

100.0 PFB
150.1 PFB

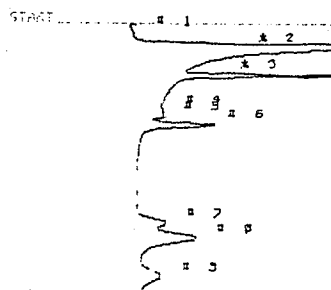
PHOTOVAC

SAMPLE LIBRARY 1 JUL 13 1994 13:18
ANALYSIS # 18 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 10 AIR

PHOTOVAC

SAMPLE LIBRARY 1 JUL 13 1994 12:10
ANALYSIS # 15 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 017-0118H 3.5-10

PHOTOVAC



STOP 6 450.0
SAMPLE LIBRARY 1 JUL 13 1994 13:4
ANALYSIS # 17 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 PFB

PHOTOVAC

SAMPLE LIBRARY 1 JUL 13 1994 13:53
ANALYSIS # 19 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 10 017-0108H 4.5-5

PHOTOVAC

SAMPLE LIBRARY 1 JUL 13 1994 12:51
ANALYSIS # 16 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 PFB

PHOTOVAC

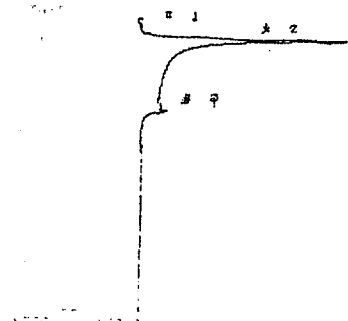
| 1 | COMPOUND | ID # | R.T. | LIMIT |
|-----------|----------|-------|-----------|-------|
| BENZENE | 1 | 20.0 | 100.0 PFB | |
| TOLUENE | 2 | 157.3 | 100.0 PFB | |
| E-BENZENE | 3 | 311.0 | 100.0 PFB | |
| NP-XYLENE | 1 | 333.0 | 100.0 PFB | |

PHOTOVAC

SAMPLE LIBRARY 1 JUL 13 1994 14:53
ANALYSIS # 20 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG
GAIN 10 017-0108H 3.5-10

116.2 PFB
100.2 PFB
101.3 PFB
102.1 PFB

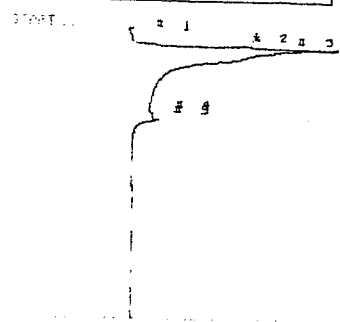
PHOTOVAC



SAMPLE LIBRARY 1 JUL 13 1994 15:3
ANALYSIS # 21 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG
GAIN 10 017-017BH 1.5-2

110.0 FPD
115.0 FPD
130.0 FPD

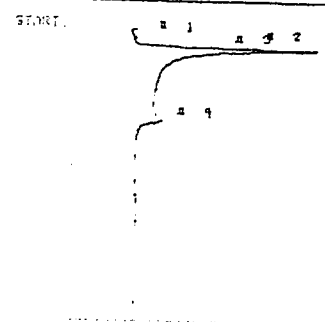
PHOTOVAC



SAMPLE LIBRARY 1 JUL 13 1994 15:18
ANALYSIS # 22 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG
GAIN 10 017-017BH 5.5-6

100.0 FPD
101.6 FPD
106.5 FPD

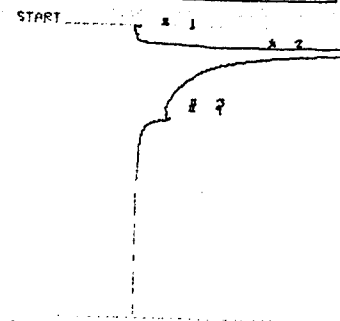
PHOTOVAC



SAMPLE LIBRARY 1 JUL 13 1994 15:40
ANALYSIS # 23 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG
GAIN 10 017-017BH 3.5-10

100.0 FPD
101.6 FPD
106.5 FPD

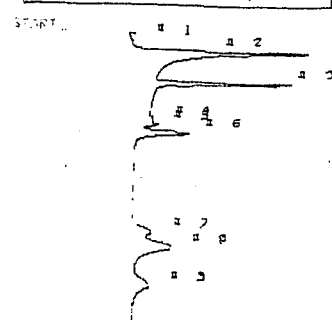
PHOTOVAC



SAMPLE LIBRARY 1 JUL 13 1994 16:3
ANALYSIS # 25 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG
GAIN 10 AIR

110.0 FPD
115.0 FPD
130.0 FPD

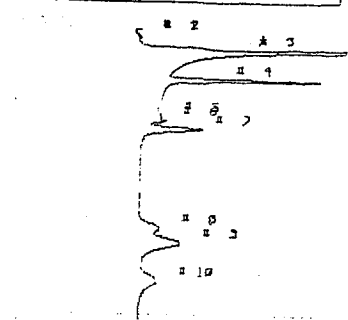
PHOTOVAC



SAMPLE LIBRARY 1 JUL 13 1994 15:54
ANALYSIS # 24 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG
GAIN 10 100 FPD

100.0 FPD
101.6 FPD
106.5 FPD

PHOTOVAC



SAMPLE LIBRARY 1 JUL 13 1994 16:18
ANALYSIS # 26 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG
GAIN 10 100 FPD

110.0 FPD
115.0 FPD
130.0 FPD

PHOTOVAC

CALIBRATED PEAK 3, PENZENE
SAMPLE LIBRARY 1 JUL 13 1994 15:58
ANALYSIS # 24 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG
GAIN 10 100 FPD

100.0 FPD
101.6 FPD
106.5 FPD

PHOTOVAC

CALIBRATED PEAK 4, PENZENE
SAMPLE LIBRARY 1 JUL 13 1994 16:19
ANALYSIS # 26 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG
GAIN 10 100 FPD

100.0 FPD
101.6 FPD
106.5 FPD

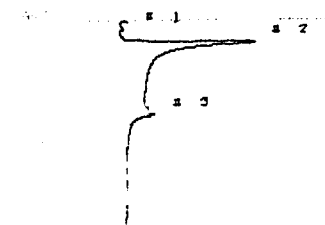
PHOTOVAC

JUL 20 1994 10:33

FIELD: 30
POWER: 43

| | | |
|---------|-----|-------|
| SAMPLE | 0.0 | 10.0 |
| CAL | 0.0 | 0.0 |
| EVENT 3 | 0.0 | 130.0 |
| EVENT 4 | 0.0 | 0.0 |
| EVENT 5 | 0.0 | 0.0 |
| EVENT 6 | 0.0 | 0.0 |
| EVENT 7 | 0.0 | 0.0 |
| EVENT 8 | 0.0 | 0.0 |

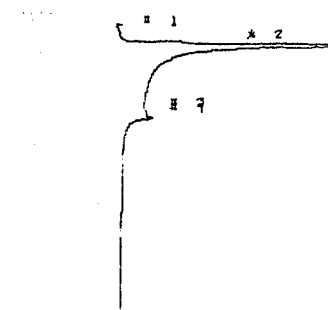
PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 11:21
ANALYSIS # 2 J BYRD, JR.
INTERNAL TEMP 31 DULUTH ANG
GAIN 10 AIR

COMPOUND NAME FROM AIR
AIR
AIR
AIR

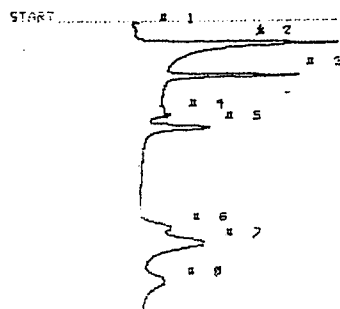
PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 11:57
ANALYSIS # 4 J BYRD, JR.
INTERNAL TEMP 33 DULUTH ANG
GAIN 10 017-0180H 2-2.5

COMPOUND NAME FROM AIR
AIR
AIR

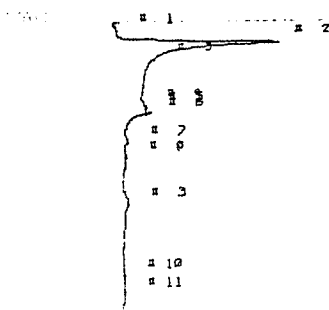
PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 11:3
ANALYSIS # 1 J BYRD, JR.
INTERNAL TEMP 23 DULUTH ANG
GAIN 10 PFB

COMPOUND NAME FROM AIR
AIR
AIR

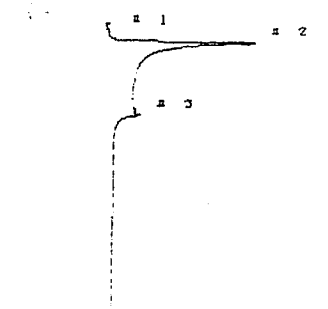
PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 11:46
ANALYSIS # 3 J BYRD, JR.
INTERNAL TEMP 32 DULUTH ANG
GAIN 10 017-0180H 2-2.5

COMPOUND NAME FROM AIR
AIR
AIR

PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 12:25
ANALYSIS # 5 J BYRD, JR.
INTERNAL TEMP 33 DULUTH ANG
GAIN 10 017-0180H 3.5-10

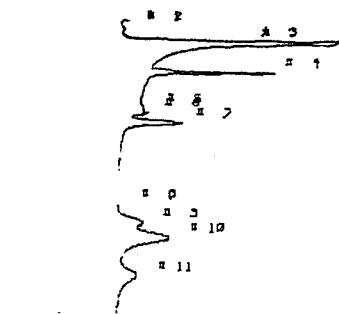
COMPOUND NAME FROM AIR
AIR
AIR

PHOTOVAC

1 COMPOUND ID # R.T. LIMIT

| | | | | |
|-----------|---|-------|-------|-----|
| BENZENE | 1 | 83.2 | 100.0 | PPB |
| TOLUENE | 2 | 163.3 | 100.0 | PPB |
| E-BENZENE | 3 | 320.3 | 100.0 | PPB |
| MP-XYLENE | 4 | 343.1 | 100.0 | PPB |

PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 12:45
ANALYSIS # 7 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 100 PFB

151.0 PFB

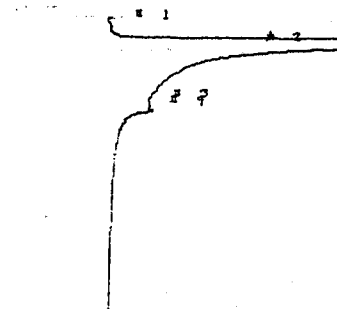
PHOTOVAC

CALIBRATED PEAK 3, BENZENE

SAMPLE LIBRARY 1 JUL 20 1994 13:4
ANALYSIS # 8 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 PFB

100.0 PFB
165.3 PFB

PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 13:26
ANALYSIS # 10 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 AIR

100.0 PFB
165.3 PFB

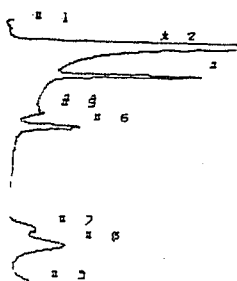
PHOTOVAC

CALIBRATED PEAK 1, BENZENE

SAMPLE LIBRARY 1 JUL 20 1994 12:46
ANALYSIS # 7 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 100 PFB

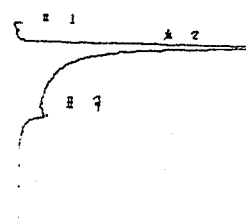
100.0 PFB
163.4 PFB

PHOTOVAC



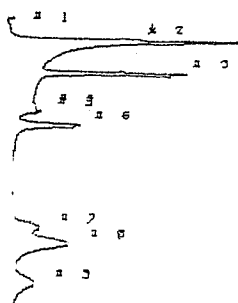
SAMPLE LIBRARY 1 JUL 20 1994 13:15
ANALYSIS # 9 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 PFB

PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 13:45
ANALYSIS # 11 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 10 017-0138H 1.5-2

PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 13:3
ANALYSIS # 8 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 PFB

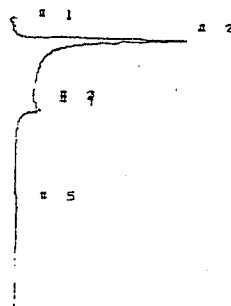
113.1 PFB
110.3 PFB
132.0 PFB

PHOTOVAC

1 COMPOUND ID # R.T. LIMIT

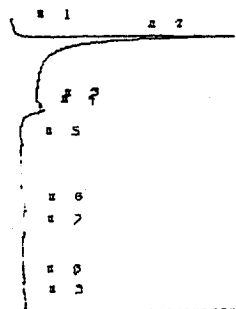
| | | | |
|-----------|---|-------|-----------|
| BENZENE | 1 | 83.2 | 100.0 PFB |
| TOLUENE | 2 | 165.1 | 100.0 PFB |
| E-BENZENE | 3 | 325.1 | 100.0 PFB |
| MP-XYLENE | 4 | 348.8 | 100.0 PFB |

PHOTOVAC



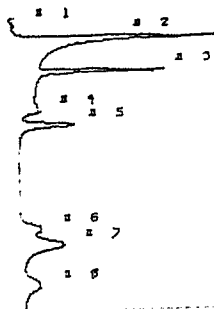
SAMPLE LIBRARY 1 JUL 20 1994 14:25
ANALYSIS # 12 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 10 017-0138H 5.0-6

PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 14:33
ANALYSIS # 13 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG5
GAIN 10 017-0198H 3.5-10

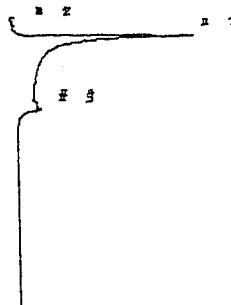
PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 15:30
ANALYSIS # 16 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG5
GAIN 10 100 PFB

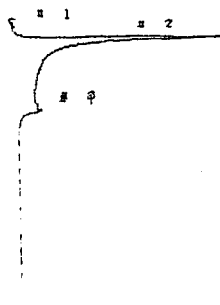
150.1 PFB

PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 15:52
ANALYSIS # 18 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG5
GAIN 10 017-0208H 3.5-10

PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 14:56
ANALYSIS # 14 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG5
GAIN 10 017-0208H 2-2.5

PHOTOVAC

CALIBRATED PEAK 3, BENZENE

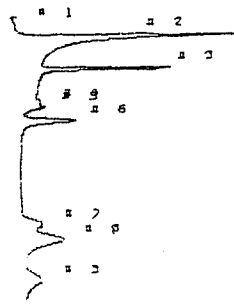
SAMPLE LIBRARY 1 JUL 20 1994 15:32
ANALYSIS # 16 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG5
GAIN 10 100 PFB

100.0 PFB

101.4 PFB

120.3 PFB

PHOTOVAC



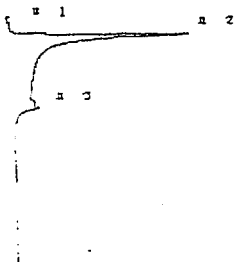
SAMPLE LIBRARY 1 JUL 20 1994 16: 2
ANALYSIS # 19 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG5
GAIN 10 100 PFB

101.6 PFB

100.2 PFB

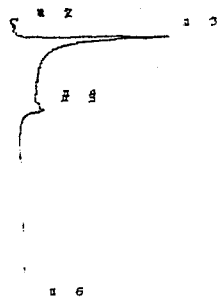
121.3 PFB

PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 15:20
ANALYSIS # 15 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG5
GAIN 10 017-0208H 5.5-6

PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 15:42
ANALYSIS # 17 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG5
GAIN 10 AIR

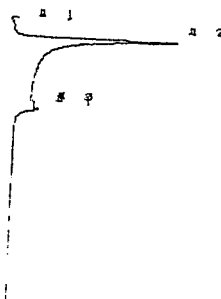
PHOTOVAC

CALIBRATED PEAK 3, PENTENE

SAMPLE LIBRARY 1 JUL 20 1999 16: 5
ANALYSIS # 15 J BYRD, JR.
INTERNAL TEMP 32 DULUTH ANG
GAIN 10 100 PPS

100.0 PPS
100.6 PPS

PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1999 16:19
ANALYSIS # 20 J BYRD, JR.
INTERNAL TEMP 32 DULUTH ANG
GAIN 10 AIR

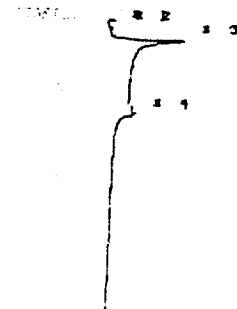
PHOTOVAC

JUL 23 1994 10:23

FIELD: 30
POWER: 43

| SAMPLE | 0.0 | 10.0 |
|---------|-----|-------|
| CAL | 0.0 | 0.0 |
| EVENT 3 | 0.0 | 100.0 |
| EVENT 4 | 0.0 | 0.0 |
| EVENT 5 | 0.0 | 0.0 |
| EVENT 6 | 0.0 | 0.0 |
| EVENT 7 | 0.0 | 0.0 |
| EVENT 8 | 0.0 | 0.0 |

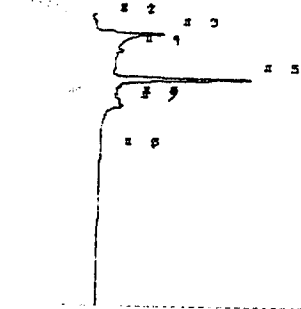
PHOTOVAC



STOP 1 10:23
SAMPLE LIBRARY 1 JUL 23 1994 11:13
ANALYSIS # 2 J BYRD, JR.
INTERNAL TEMP 32 DULUTH ANG
GAIN 10 021-025 AU

COMPOUND NAME: 10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100

PHOTOVAC



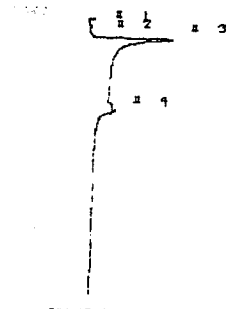
STOP 1 11:42
SAMPLE LIBRARY 1 JUL 23 1994 11:42
ANALYSIS # 5 J BYRD, JR.
INTERNAL TEMP 33 DULUTH ANG
GAIN 10 021-014 AU

COMPOUND NAME: 10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100

PHOTOVAC

1- COMPOUND 10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100

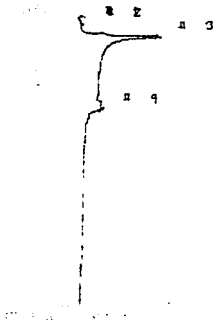
PHOTOVAC



STOP 1 11:23
SAMPLE LIBRARY 1 JUL 23 1994 11:23
ANALYSIS # 3 J BYRD, JR.
INTERNAL TEMP 33 DULUTH ANG
GAIN 10 021-025 AU

COMPOUND NAME: 10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100

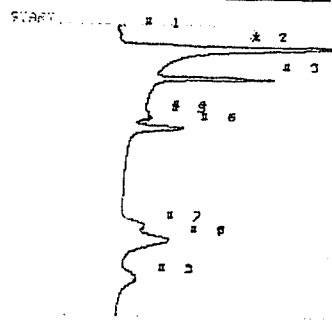
PHOTOVAC



STOP 1 11:52
SAMPLE LIBRARY 1 JUL 23 1994 11:52
ANALYSIS # 6 J BYRD, JR.
INTERNAL TEMP 33 DULUTH ANG
GAIN 10 021-026 AU

COMPOUND NAME: 10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100

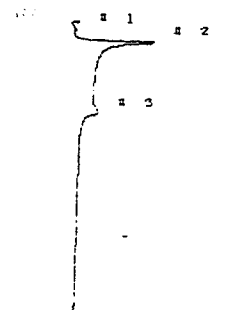
PHOTOVAC



STOP 1 11:11
SAMPLE LIBRARY 1 JUL 23 1994 11:11
ANALYSIS # 1 J BYRD, JR.
INTERNAL TEMP 31 DULUTH ANG
GAIN 10 100 PFB

COMPOUND NAME: 10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100

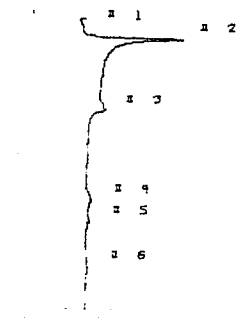
PHOTOVAC



STOP 1 11:32
SAMPLE LIBRARY 1 JUL 23 1994 11:32
ANALYSIS # 4 J BYRD, JR.
INTERNAL TEMP 33 DULUTH ANG
GAIN 10 021-010 AU

COMPOUND NAME: 10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100

PHOTOVAC



STOP 1 12:2
SAMPLE LIBRARY 1 JUL 23 1994 12:2
ANALYSIS # 7 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 018-006H 2.5

COMPOUND NAME: 10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100

PHOTOVAC

1 COMPOUND 10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100

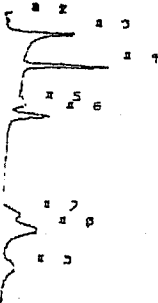
| COMPOUND | 1 | 00.6 | 100.0 | PFB |
|-----------|---|-------|-------|-----|
| BENZENE | 1 | 00.6 | 100.0 | PFB |
| TOLUENE | 2 | 153.5 | 100.0 | PFB |
| E-BENZENE | 3 | 312.5 | 100.0 | PFB |
| PF-XYLENE | 4 | 335.0 | 100.0 | PFB |

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 12:26
ANALYSIS # 5 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 100 PPS

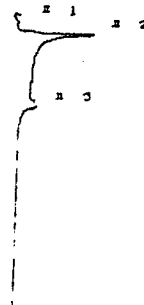
PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 12:13
ANALYSIS # 8 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 100 PPS

132.9 PPS

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 12:47
ANALYSIS # 11 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 018-0068M 1.2

PHOTOVAC

1 COMPOUND ID # R.T. LIMIT

| | | | |
|-----------|---|-------|-----------|
| BENZENE | 1 | 80.6 | 100.0 PPS |
| TOLUENE | 2 | 153.7 | 100.0 PPS |
| E-BENZENE | 3 | 313.1 | 100.0 PPS |
| MP-XYLENE | 4 | 335.6 | 100.0 PPS |
| D-XYLENE | 5 | 355.3 | 100.0 PPS |

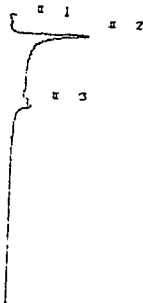
PHOTOVAC

CALIBRATED PEAK 3, BENZENE

SAMPLE LIBRARY 1 JUL 23 1994 12:14
ANALYSIS # 8 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 100 PPS

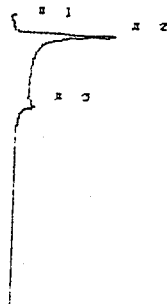
100.0 PPS

PHOTOVAC



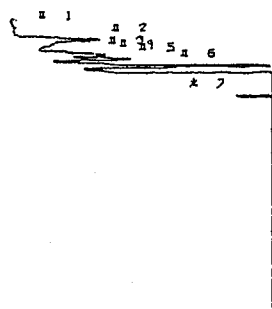
SAMPLE LIBRARY 1 JUL 23 1994 12:37
ANALYSIS # 10 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 AIR

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 12:57
ANALYSIS # 12 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 017-0108M1.5-2.5

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 13:0
ANALYSIS # 13 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 010-007BH 2.5

COMPOUND NAME IDENTIFICATION

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 15:37
ANALYSIS # 14 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 PPB

COMPOUND NAME IDENTIFICATION

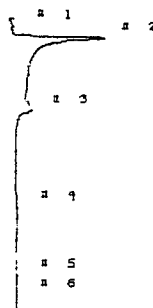
PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 16:0
ANALYSIS # 16 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 10 021-004SD

COMPOUND NAME IDENTIFICATION

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 16:11
ANALYSIS # 17 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 10 021-004SD

COMPOUND NAME IDENTIFICATION

PHOTOVAC

1 COMPOUND ID # R.T. LIMIT

| | | | | |
|-----------|---|-------|-------|-----|
| BENZENE | 1 | 80.6 | 100.0 | PPB |
| TOLUENE | 2 | 152.7 | 100.0 | PPB |
| E-BENZENE | 3 | 313.1 | 100.0 | PPB |
| MP-XYLENE | 4 | 335.6 | 100.0 | PPB |
| O-XYLENE | 5 | 335.3 | 100.0 | PPB |

PHOTOVAC

1 COMPOUND ID # R.T. LIMIT

| | | | | |
|-----------|---|-------|-------|-----|
| BENZENE | 1 | 81.6 | 100.0 | PPB |
| TOLUENE | 2 | 161.7 | 100.0 | PPB |
| E-BENZENE | 3 | 312.3 | 100.0 | PPB |
| MP-XYLENE | 4 | 341.0 | 100.0 | PPB |
| O-XYLENE | 5 | 401.7 | 100.0 | PPB |

PHOTOVAC



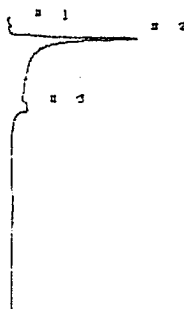
SAMPLE LIBRARY 1 JUL 23 1994 15:50
ANALYSIS # 15 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 AIR

COMPOUND NAME IDENTIFICATION

PHOTOVAC

1 COMPOUND ID # R.T. LIMIT

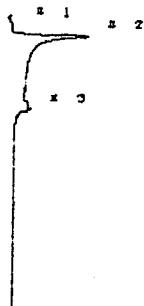
PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 16:21
ANALYSIS # 18 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 021-006SD

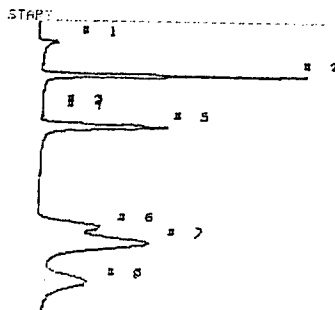
COMPOUND NAME IDENTIFICATION

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 16:31
ANALYSIS # 13 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 021-007SD

PHOTOVAC

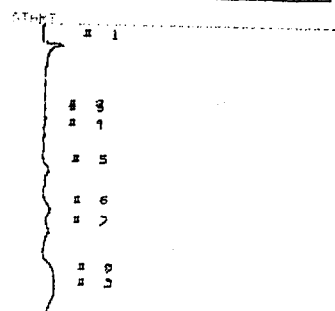


STOP # 490.0
SAMPLE LIBRARY 1 JUL 23 1994 17: 5
ANALYSIS # 22 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 2 1 PPM

COMPOUND NAME PEAK R.T. LIMIT

| | | | |
|-----------|---|-------|-----------|
| BENZENE | 1 | 101.2 | 1.000 PPM |
| TOLUENE | 2 | 161.2 | 1.000 PPM |
| E-BENZENE | 3 | 312.0 | 1.000 PPM |
| MP-XYLENE | 4 | 310.1 | 1.000 PPM |

PHOTOVAC

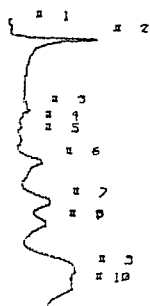


STOP # 492.0
SAMPLE LIBRARY 1 JUL 23 1994 17:27
ANALYSIS # 24 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 2 018-007BH0.8-1.3

COMPOUND NAME PEAK R.T. LIMIT

| | | | |
|-----------|---|-------|-----------|
| BENZENE | 1 | 101.2 | 1.000 PPM |
| TOLUENE | 2 | 161.2 | 1.000 PPM |
| E-BENZENE | 3 | 312.0 | 1.000 PPM |
| MP-XYLENE | 4 | 310.1 | 1.000 PPM |

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 16:41
ANALYSIS # 20 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 018-007BH .8-1.3

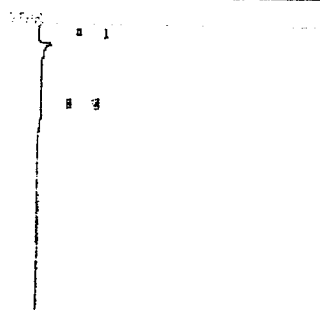
214.3 PPM
653.6 PPM
570.0 PPM

PHOTOVAC

1 COMPOUND ID # R.T. LIMIT

| | | | |
|-----------|---|-------|-----------|
| BENZENE | 1 | 101.2 | 1.000 PPM |
| TOLUENE | 2 | 161.2 | 1.000 PPM |
| E-BENZENE | 3 | 312.0 | 1.000 PPM |
| MP-XYLENE | 4 | 310.1 | 1.000 PPM |

PHOTOVAC

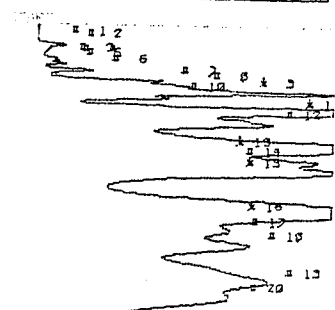


STOP # 492.0
SAMPLE LIBRARY 1 JUL 23 1994 17:17
ANALYSIS # 23 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 2 AIR

COMPOUND NAME PEAK R.T. LIMIT

| | | | |
|---------|---|-------|-----------|
| BENZENE | 1 | 101.2 | 1.000 PPM |
| TOLUENE | 2 | 161.2 | 1.000 PPM |

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 17:37
ANALYSIS # 25 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 2 018-007BH 2.5

COMPOUND NAME PEAK R.T. LIMIT

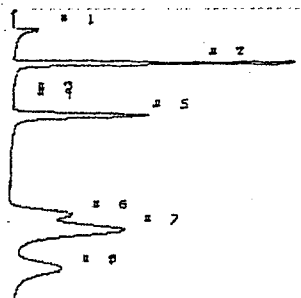
| | | | |
|---------|---|-------|-----------|
| BENZENE | 1 | 101.2 | 1.000 PPM |
| TOLUENE | 2 | 161.2 | 1.000 PPM |

3.531 PPM

3.224 PPM

1.033 PPM

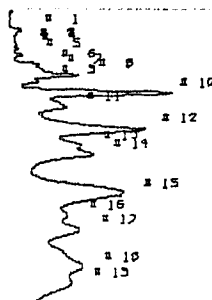
PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 12:50
ANALYSIS # 26 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 2 1 PPM BTEX

1.023 PPM
1.028 PPM
1.026 PPM
2.053 PPM

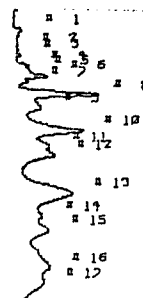
PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 18:4
ANALYSIS # 27 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 2 018-0020M 2.5

1.022 PPM

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 18:30
ANALYSIS # 29 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 2 018-0020M 2.5

1.022 PPM

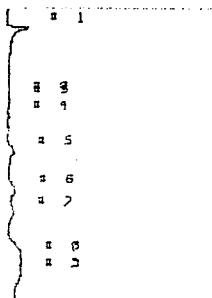
PHOTOVAC

CALIBRATED PEAK 2, BENZENE

SAMPLE LIBRARY 1 JUL 23 1994 17:52
ANALYSIS # 26 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 2 1 PPM BTEX

1.000 PPM
1.307 PPM

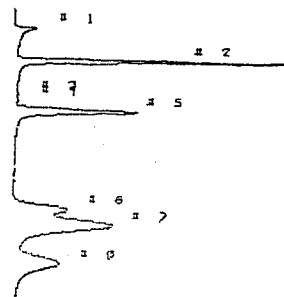
PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 18:18
ANALYSIS # 28 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 2 018-0020M 0.8-1.3

1.022 PPM

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 18:43
ANALYSIS # 30 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 2 1 PPM

1.616 PPM

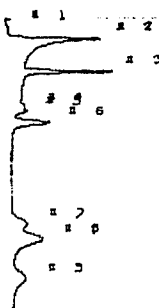
PHOTOVAC

CALIBRATED PEAK 2, BENZENE

SAMPLE LIBRARY 1 JUL 23 1994 18:45
ANALYSIS # 38 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 2 1 PPM

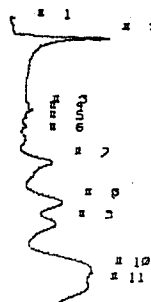
1.260 PPM

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 19:08
ANALYSIS # 32 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 PPM

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 19:23
ANALYSIS # 34 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 10 010-0028H0.8-1.3

224.6 PPM
056.0 PPM
735.2 PPM

PHOTOVAC



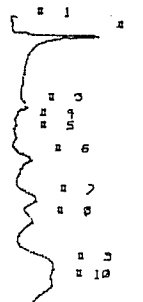
SAMPLE LIBRARY 1 JUL 23 1994 18:52
ANALYSIS # 31 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 2 AIR

PHOTOVAC

1 COMPOUND ID # R.T. LIMIT

| | | | | |
|-----------|---|-------|-------|-----|
| BENZENE | 1 | 81.2 | 100.0 | PPM |
| TOLUENE | 2 | 162.1 | 100.0 | PPM |
| E-BENZENE | 3 | 318.2 | 100.0 | PPM |
| MP-XYLENE | 4 | 341.6 | 100.0 | PPM |
| O-XYLENE | 5 | 402.5 | 100.0 | PPM |

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 19:42
ANALYSIS # 35 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 10 010-0028H0.8-1.3

166.3 PPM
183.6 PPM
136.8 PPM

PHOTOVAC

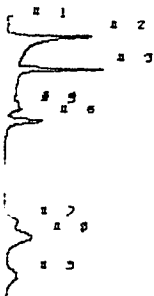
1 COMPOUND ID # R.T. LIMIT

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 19:19
ANALYSIS # 33 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 AIR

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 13:54
ANALYSIS # 36 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 10 100 PFD

129.7 PFD

PHOTOVAC

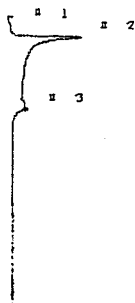
CALIBRATED PEAK 3, BENZENE

SAMPLE LIBRARY 1 JUL 23 1994 13:56
ANALYSIS # 36 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 10 100 PFD

100.0 PFD

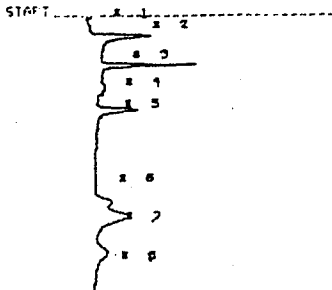
107.0 PFD

PHOTOVAC



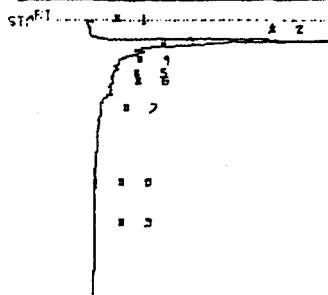
SAMPLE LIBRARY 1 JUL 23 1994 20: 7
ANALYSIS # 37 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 10 AIR

PHOTOVAC



STOP 0 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 12:41
 ANALYSIS # 15 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 5 021-025 10-11

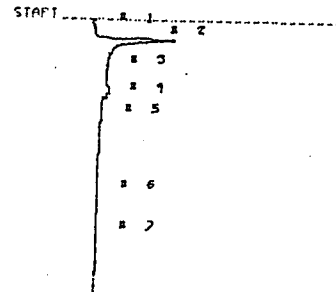
| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 2 | 31.7 | 1.8 US |
| BENZENE | 3 | 78.3 | 97.80 PPB |
| UNKNOWN | 4 | 117.4 | 175.7 μUS |
| TOLUENE | 5 | 152.6 | 100.8 PPB |
| E-BEN, MP-XYL | 7 | 324.9 | 231.6 PPB |



STOP 0 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 13:5
 ANALYSIS # 15 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 5 021-025 10-11

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|----------|
| UNKNOWN | 2 | 31.1 | 2.8 US |
| UNKNOWN | 3 | 51.1 | 2.1 US |

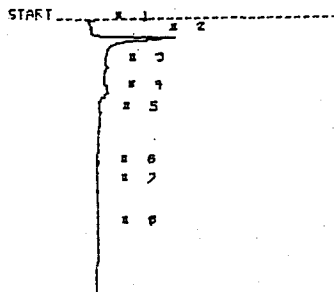
PHOTOVAC



STOP 0 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 13:35
 ANALYSIS # 18 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 5 021-023 1.5-2.0

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 2 | 32.0 | 3.3 US |
| BENZENE | 3 | 78.3 | 73.04 PPB |
| UNKNOWN | 4 | 117.4 | 979.2 μUS |

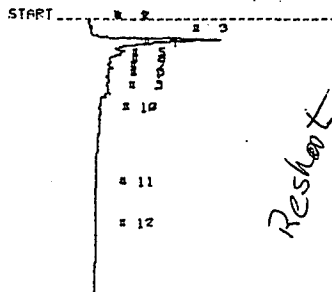
PHOTOVAC



STOP 0 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 12:52
 ANALYSIS # 13 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 5 021-025 1.5-2.0

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 2 | 31.7 | 3.3 US |
| BENZENE | 3 | 78.3 | 82.82 PPB |
| UNKNOWN | 4 | 117.4 | 838.5 μUS |
| TOLUENE | 5 | 152.6 | 5.210 PPB |

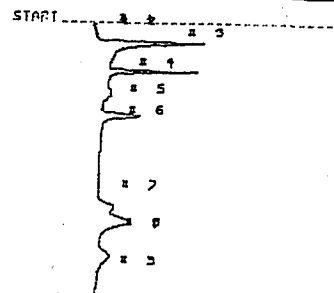
PHOTOVAC



STOP 0 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 13:14
 ANALYSIS # 16 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 5 021-025 10-11

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|-----------|
| UNKNOWN | 3 | 31.7 | 2.0 US |
| UNKNOWN | 4 | 51.1 | 125.2 μUS |

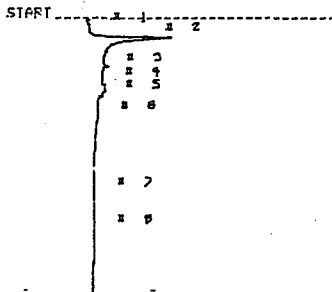
PHOTOVAC



STOP 0 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 13:44
 ANALYSIS # 19 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 5 021-023 1.5-2.0

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 3 | 31.7 | 3.3 US |
| BENZENE | 4 | 78.3 | 126.0 PPB |
| UNKNOWN | 5 | 117.4 | 951.3 μUS |
| TOLUENE | 6 | 151.5 | 89.24 PPB |
| E-BEN, MP-XYL | 8 | 324.9 | 272.4 PPB |

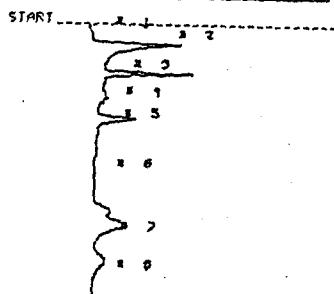
PHOTOVAC



STOP 0 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 13:52
 ANALYSIS # 23 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 5 021-025 10-11

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 2 | 31.7 | 3.3 US |
| BENZENE | 3 | 78.3 | 58.19 PPB |
| UNKNOWN | 4 | 98.9 | 138.0 μUS |
| UNKNOWN | 5 | 117.4 | 971.7 μUS |

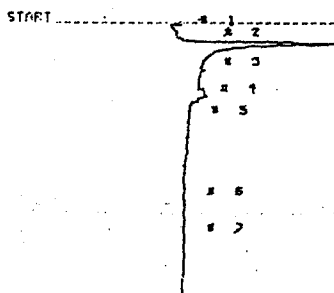
PHOTOVAC



STOP @ 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 13:57
 ANALYSIS # 20 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 5 021-023 1.5-2.0

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|----------|
| UNKNOWN | 2 | 31.2 | 4.1 US |
| UNKNOWN | 3 | 78.3 | 2.5 US |
| UNKNOWN | 4 | 117.4 | 1.2 US |
| UNKNOWN | 5 | 152.6 | 1.9 US |
| UNKNOWN | 7 | 327.1 | 2.6 US |

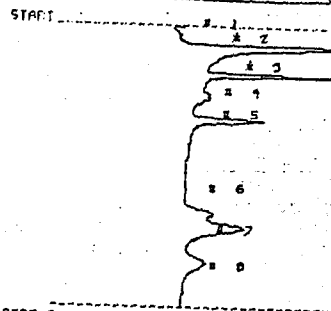
PHOTOVAC



STOP @ 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 14:20
 ANALYSIS # 22 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 10 AIR BLANK

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 2 | 31.2 | 7.4 US |
| BENZENE | 3 | 78.3 | 38.41 PPB |
| UNKNOWN | 4 | 117.4 | 1.7 US |

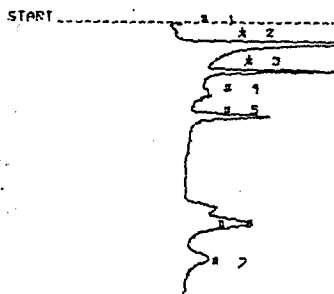
PHOTOVAC



STOP @ 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 14:38
 ANALYSIS # 24 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 10 100 PPB

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|----------------|------|-------|-----------|
| UNKNOWN | 2 | 31.5 | 3.1 US |
| BENZENE | 3 | 77.1 | 31.46 PPB |
| UNKNOWN | 4 | 117.4 | 1.6 US |
| TOLUENE | 5 | 152.6 | 30.38 PPB |
| E-BENZ, MP-XYL | 7 | 327.1 | 271.6 PPB |

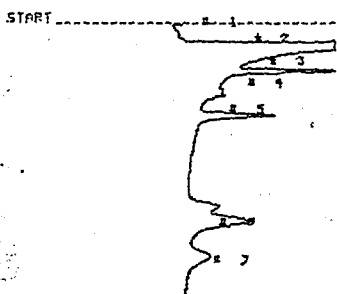
PHOTOVAC



STOP @ 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 14:06
 ANALYSIS # 21 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 10 021-023 1.5-2.0

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|----------|
| UNKNOWN | 2 | 31.9 | 11.8 US |
| UNKNOWN | 3 | 77.3 | 5.8 US |
| UNKNOWN | 4 | 117.4 | 1.8 US |
| UNKNOWN | 5 | 151.5 | 1.8 US |
| UNKNOWN | 6 | 327.1 | 5.2 US |

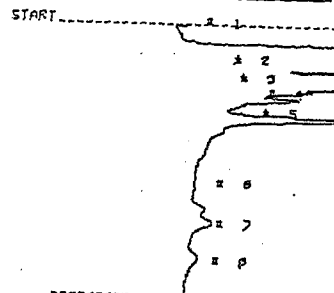
PHOTOVAC



STOP @ 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 14:28
 ANALYSIS # 23 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 10 100 PPB

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|----------------|------|-------|-----------|
| UNKNOWN | 2 | 35.4 | 31.5 US |
| BENZENE | 3 | 76.6 | 120.5 PPB |
| UNKNOWN | 4 | 111.8 | 1.4 US |
| TOLUENE | 5 | 151.5 | 46.21 PPB |
| E-BENZ, MP-XYL | 6 | 327.1 | 271.3 PPB |

PHOTOVAC



STOP @ 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 14:49
 ANALYSIS # 25 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 10 021-023 10.5-11

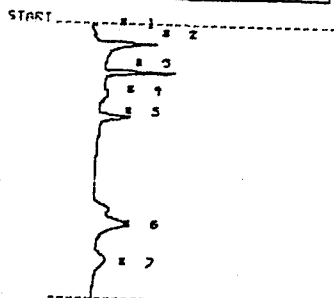
| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|----------------|------|-------|-----------|
| UNKNOWN | 2 | 49.7 | 188.9 US |
| UNKNOWN | 3 | 86.8 | 19.9 US |
| TOLUENE | 5 | 149.3 | 230.0 PPB |
| E-BENZ, MP-XYL | 7 | 327.1 | 98.01 PPB |

PHOTOVAC

1 COMPOUND ID # R.T. LIMIT

| | | | |
|----------------|---|-------|-----------|
| BENZENE | 1 | 77.0 | 100.0 PPB |
| TOLUENE | 2 | 151.5 | 100.0 PPB |
| E-BENZ, MP-XYL | 3 | 327.1 | 100.0 PPB |

PHOTOVAC



STOP @ 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 14:53
 ANALYSIS # 26 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 5 100 PPS

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|----------------|------|-------|-----------|
| UNKNOWN | 2 | 32.0 | 2.7 US |
| BENZENE | 3 | 78.3 | 72.93 PPS |
| UNKNOWN | 4 | 112.4 | 252.6 PPS |
| TOLUENE | 5 | 152.6 | 83.18 PPS |
| E-BENZ, MP-XYL | 6 | 327.1 | 223.5 PPS |

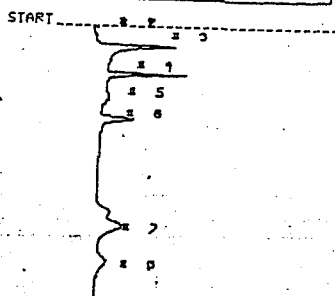
PHOTOVAC

CALIBRATED PEAK 3, BENZENE

SAMPLE LIBRARY 1 JUL 13 1994 15:1
 ANALYSIS # 26 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG
 GAIN 5 100 PPS

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|----------------|------|-------|-----------|
| UNKNOWN | 2 | 32.0 | 2.7 US |
| BENZENE | 3 | 78.3 | 100.0 PPS |
| UNKNOWN | 4 | 112.4 | 252.6 PPS |
| TOLUENE | 5 | 152.6 | 110.1 PPS |
| E-BENZ, MP-XYL | 6 | 327.1 | 225.6 PPS |

PHOTOVAC



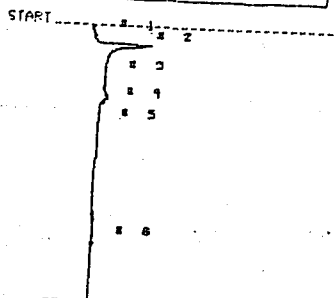
STOP @ 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 15:12
 ANALYSIS # 27 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG
 GAIN 5 100 PPS

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 3 | 31.7 | 0.1 US |
| UNKNOWN | 4 | 78.3 | 2.2 US |
| UNKNOWN | 5 | 112.4 | 282.2 PPS |
| UNKNOWN | 6 | 322.6 | 718.0 PPS |

PHOTOVAC

1 COMPOUND 10 # R.T. LIMIT
 BEN 1 78.3 100.0 PPS
 TOL 2 152.6 100.0 PPS
 E-BEN, MP-XYL 3 327.1 100.0 PPS

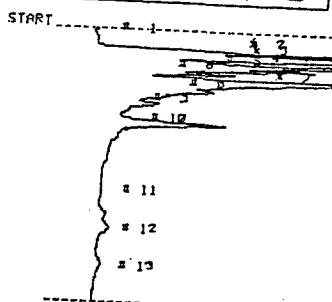
PHOTOVAC



STOP @ 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 15:23
 ANALYSIS # 28 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG
 GAIN 5 100 PPS

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 2 | 32.0 | 2.6 US |
| BEN | 3 | 78.3 | 21.84 PPS |
| UNKNOWN | 4 | 112.4 | 149.2 PPS |

PHOTOVAC



STOP @ 430.0
 SAMPLE LIBRARY 1 JUL 13 1994 15:32
 ANALYSIS # 23 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG
 GAIN 5 821-823 10.5-11

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 2 | 31.6 | 4.1 US |
| UNKNOWN | 3 | 38.5 | 8.4 US |
| UNKNOWN | 4 | 50.7 | 8.7 US |
| UNKNOWN | 5 | 55.1 | 3.6 US |
| UNKNOWN | 6 | 68.1 | 2.3 US |
| BEN | 7 | 76.7 | 642.0 PPS |
| UNKNOWN | 8 | 97.5 | 3.2 US |
| TOL | 10 | 151.5 | 333.0 PPS |
| E-BEN, MP-XYL | 12 | 324.4 | 176.2 PPS |

PHOTOVAC

JUL 13 1994 15:36

FIELD: 30
 POWER: 42

| | | |
|---------|-----|-----|
| SAMPLE | 0.0 | 0.0 |
| CAL | 0.0 | 0.0 |
| EVENT 3 | 0.0 | 0.0 |
| EVENT 4 | 0.0 | 0.0 |
| EVENT 5 | 0.0 | 0.0 |
| EVENT 6 | 0.0 | 0.0 |
| EVENT 8 | 0.0 | 0.0 |

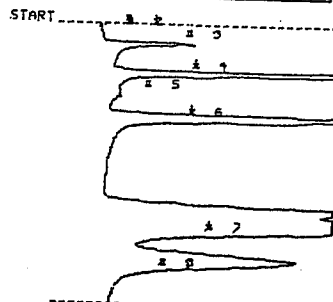
PHOTOVAC

JUL 13 1994 15:37

FIELD: 30
 POWER: 43

| | | |
|---------|-----|-------|
| SAMPLE | 0.0 | 10.0 |
| CAL | 0.0 | 0.0 |
| EVENT 3 | 0.0 | 100.0 |
| EVENT 4 | 0.0 | 0.0 |
| EVENT 5 | 0.0 | 0.0 |
| EVENT 6 | 0.0 | 0.0 |
| EVENT 8 | 0.0 | 0.0 |

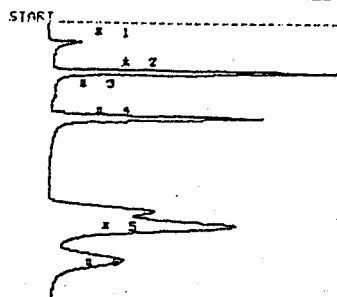
PHOTOVAC



STOP @ 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 15:47
 ANALYSIS # 32 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG
 GAIN 5 1 PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|----------|
| UNKNOWN | 1 | 9.5 | 5.3 PPS |
| UNKNOWN | 3 | 31.7 | 3.5 US |
| UNKNOWN | 4 | 76.8 | 10.6 US |
| UNKNOWN | 5 | 111.0 | 1.5 US |
| UNKNOWN | 6 | 149.3 | 19.0 US |
| UNKNOWN | 7 | 311.1 | 232.5 US |

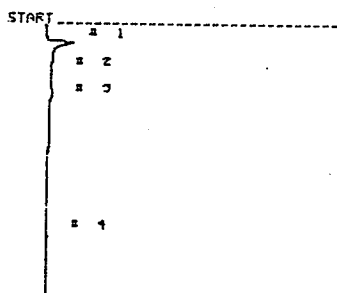
PHOTOVAC



STOP @ 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 15:55
 ANALYSIS # 33 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 1 PPM

COMPOUND NAME PEAK R.T. AREA/PPM
 UNKNOWN 1 32.0 791.8 μS
 UNKNOWN 3 112.4 44.4 μS
 UNKNOWN 4 323.3 6.8 μS

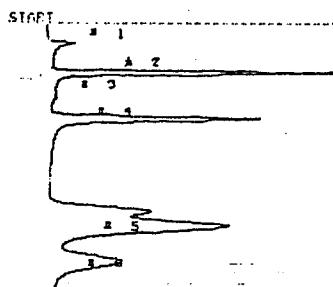
PHOTOVAC



STOP @ 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 16: 6
 ANALYSIS # 34 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 AIR

COMPOUND NAME PEAK R.T. AREA/PPM
 UNKNOWN 1 32.0 791.8 μS
 UNKNOWN 3 112.4 44.4 μS
 UNKNOWN 4 323.3 6.8 μS

PHOTOVAC



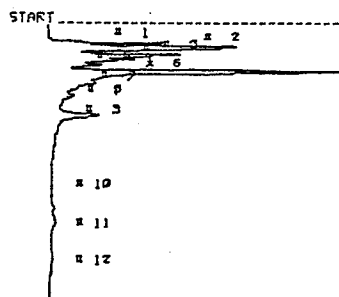
STOP @ 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 16:15
 ANALYSIS # 35 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 1 PPM

COMPOUND NAME PEAK R.T. AREA/PPM
 UNKNOWN 1 32.0 1.0 US
 UNKNOWN 2 32.0 2.3 US
 UNKNOWN 3 111.0 568.3 μS
 UNKNOWN 4 152.6 6.3 US
 UNKNOWN 5 327.1 12.9 US

PHOTOVAC

2 COMPOUND ID # R.T. LIMIT
 BENZENE 1 32.0 1.000 PPM
 EBEN, MPXYL 3 327.1 1.000 PPM

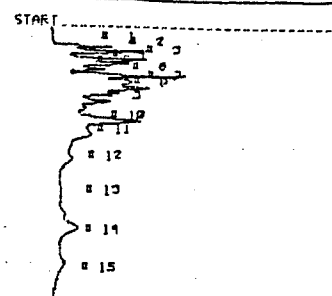
PHOTOVAC



STOP @ 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 16:28
 ANALYSIS # 36 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 1 PPM

COMPOUND NAME PEAK R.T. AREA/PPM
 UNKNOWN 1 32.0 1.2 US
 UNKNOWN 2 32.0 4.0 US
 UNKNOWN 3 51.5 2.6 US
 UNKNOWN 4 53.1 1.4 US
 UNKNOWN 5 68.6 322.2 μS
 BENZ 6 77.4 1.110 PPM
 UNKNOWN 7 98.2 1.2 US
 TOLUENE 9 152.6 112.5 PPB
 EBEN, MPXYL 11 327.1 61.10 PPB

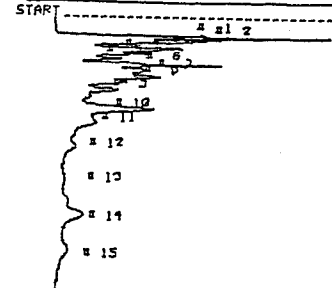
PHOTOVAC



STOP @ 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 16:33
 ANALYSIS # 37 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 021-022 6.0-6.5

COMPOUND NAME PEAK R.T. AREA/PPM
 UNKNOWN 1 32.0 744.2 μS
 UNKNOWN 2 32.0 1.7 US
 UNKNOWN 3 51.5 1.9 US
 UNKNOWN 4 53.1 1.1 US
 UNKNOWN 5 68.6 371.4 μS
 BENZ 6 79.3 312.2 PPB
 UNKNOWN 7 98.2 2.6 US
 UNKNOWN 8 120.8 31.4 μS
 EBEN, MPXYL 14 327.1 228.0 PPB

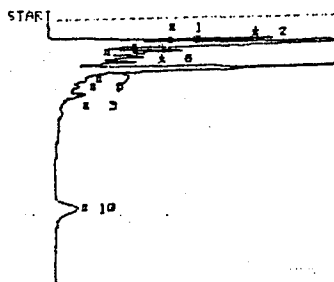
PHOTOVAC



STOP @ 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 16:50
 ANALYSIS # 38 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 021-022 6.0-6.5

COMPOUND NAME PEAK R.T. AREA/PPM
 UNKNOWN 1 32.0 3.4 US
 UNKNOWN 2 32.4 3.5 US
 UNKNOWN 3 51.5 2.7 US
 UNKNOWN 4 53.1 1.5 US
 UNKNOWN 5 68.6 1.2 US
 BENZ 6 79.3 334.9 PPB
 UNKNOWN 7 98.5 2.4 US
 UNKNOWN 8 98.9 2.9 US
 UNKNOWN 9 120.8 304.4 μS
 TOLUENE 10 152.6 228.6 PPB
 UNKNOWN 11 179.4 360.2 μS
 UNKNOWN 13 268.0 69.3 μS
 EBEN, MPXYL 14 327.1 228.3 PPB

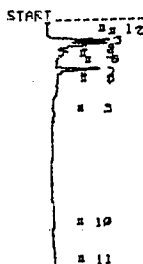
PHOTOVAC



STOP # 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 17:14
 ANALYSIS # 39 J BYRD, JR
 INTERNAL TEMP 35 DULUTH ANG8
 GAIN 2 021-022 16.5-17

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 1 | 32.9 | 2.5 US |
| UNKNOWN | 2 | 38.9 | 2.1 US |
| UNKNOWN | 3 | 51.1 | 2.9 US |
| UNKNOWN | 4 | 63.1 | 1.3 US |
| UNKNOWN | 5 | 68.6 | 1.4 US |
| BENZ | 6 | 78.8 | 1.081 PPM |
| UNKNOWN | 7 | 110.2 | 618.3 MUS |
| UNKNOWN | 8 | 153.7 | 376.1 PPM |
| UNKNOWN | 9 | 329.3 | 2.211 PPM |

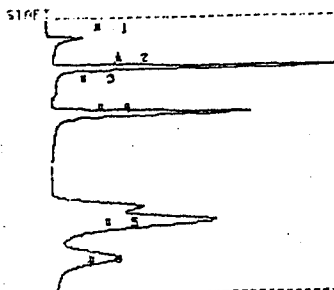
PHOTOVAC



STOP # 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 17:14
 ANALYSIS # 40 J BYRD, JR
 INTERNAL TEMP 35 DULUTH ANG8
 GAIN 2 021-022 16.5-17

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 1 | 32.6 | 753.8 MUS |
| UNKNOWN | 2 | 37.7 | 1.0 US |
| UNKNOWN | 3 | 51.5 | 435.0 MUS |
| UNKNOWN | 4 | 59.6 | 247.2 MUS |
| UNKNOWN | 5 | 69.1 | 122.4 MUS |
| BENZ | 6 | 79.5 | 141.5 PPM |
| UNKNOWN | 7 | 99.6 | 236.5 MUS |
| UNKNOWN | 8 | 109.4 | 238.7 MUS |
| TOLUENE | 9 | 153.7 | 3.655 PPM |
| BENZ, MPXYL | 10 | 329.3 | 11.09 PPM |

PHOTOVAC



STOP # 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 17:31
 ANALYSIS # 41 J BYRD, JR
 INTERNAL TEMP 35 DULUTH ANG8
 GAIN 2 1 PPM

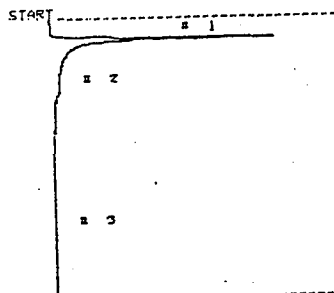
| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 1 | 32.9 | 1.4 US |
| BENZ | 2 | 78.8 | 1.081 PPM |
| UNKNOWN | 3 | 110.2 | 618.3 MUS |
| TOLUENE | 4 | 153.7 | 376.1 PPM |
| BENZ, MPXYL | 5 | 329.3 | 2.211 PPM |

PHOTOVAC

STOP # 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 17:35
 ANALYSIS # 42 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 1 PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|----------|
|---------------|------|------|----------|

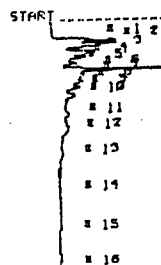
PHOTOVAC



STOP # 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 17:43
 ANALYSIS # 43 J BYRD, JR
 INTERNAL TEMP 35 DULUTH ANG8
 GAIN 2 1 PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 1 | 32.0 | 5.3 US |
| UNKNOWN | 2 | 111.8 | 241.8 MUS |

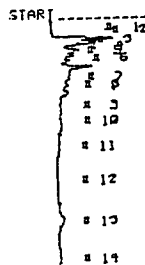
PHOTOVAC



STOP # 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 17:55
 ANALYSIS # 44 J BYRD, JR
 INTERNAL TEMP 35 DULUTH ANG8
 GAIN 2 021-022 14.5-15

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 1 | 32.6 | 304.1 MUS |
| UNKNOWN | 2 | 37.7 | 1.2 US |
| UNKNOWN | 3 | 51.9 | 832.1 MUS |
| UNKNOWN | 4 | 59.6 | 555.2 MUS |
| UNKNOWN | 5 | 69.1 | 323.8 MUS |
| BENZ | 6 | 79.5 | 240.1 PPM |
| UNKNOWN | 7 | 99.6 | 224.3 MUS |
| UNKNOWN | 8 | 99.6 | 634.5 MUS |
| UNKNOWN | 9 | 109.6 | 635.7 MUS |
| UNKNOWN | 10 | 121.7 | 710.4 MUS |
| TOLUENE | 11 | 151.5 | 11.79 PPM |
| UNKNOWN | 12 | 175.6 | 110.6 MUS |
| BENZ, MPXYL | 15 | 329.3 | 11.95 PPM |

PHOTOVAC



STOP # 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 18:06
 ANALYSIS # 45 J BYRD, JR
 INTERNAL TEMP 35 DULUTH ANG8
 GAIN 2 021-022 14.5-15
 COMPOUND NAME PEAK R.T. AREA/PPM
 BENZ, MPXYL 18 329.3 11.95 PPM

PHOTOVAC

CALIBRATED PEAK 3.0BENZENE

SAMPLE LIBRARY 1 JUL 15 1994 10:28
ANALYSIS # 14 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 5 100 PFB

| COMPOUND NAME | PEAK | R.T. | AREA/PFB |
|---------------|------|-------|-----------|
| UNKNOWN | 2 | 102.3 | 2.3 US |
| BENZENE | 3 | 100.0 | 100.0 PFB |
| TOLUENE | 4 | 101.3 | 101.3 PFB |
| EDUETHENE | 5 | 101.3 | 101.3 PFB |

PHOTOVAC

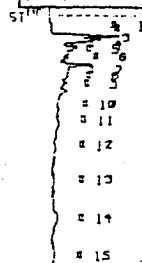
STMP

STOP 6 102.3
SAMPLE LIBRARY 1 JUL 15 1994 10:28
ANALYSIS # 15 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 5 AIR

COMPOUND NAME PEAK R.T. AREA/PFB

UNKNOWN 2 102.3 2.3 US

PHOTOVAC

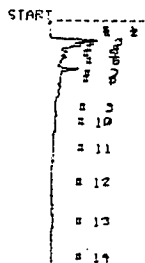


STOP 4 432.2
 SAMPLE LIBRARY 2 JUL 13 1994 18:16
 ANALYSIS # 46 J BYRD, JR
 INTERNAL TEMP 35 DULUTH ANG8
 GAIN 2 021-021 14.5-15

COMPOUND NAME PEAK R.T. AREA/PPM

| | | | |
|-------------|----|-------|-----------|
| UNKNOWN | 1 | 32.3 | 1.0 US |
| UNKNOWN | 2 | 37.4 | 595.4 μS |
| UNKNOWN | 3 | 51.5 | 375.7 μS |
| UNKNOWN | 4 | 53.6 | 324.7 μS |
| UNKNOWN | 5 | 68.6 | 284.0 μS |
| BENZ | 6 | 78.3 | 102.5 PPB |
| EBEN, MPXYL | 14 | 327.1 | 59.56 PPB |

PHOTOVAC

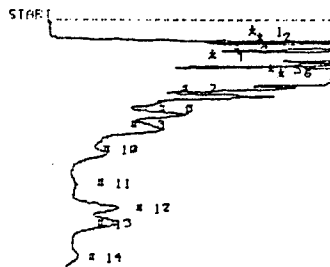


STOP 4 432.0
 SAMPLE LIBRARY 2 JUL 13 1994 18:27
 ANALYSIS # 47 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 021-023 14.5-15

COMPOUND NAME PEAK R.T. AREA/PPM

| | | | |
|---------|---|-------|-----------|
| UNKNOWN | 1 | 32.3 | 744.7 μS |
| UNKNOWN | 2 | 37.4 | 753.7 μS |
| UNKNOWN | 3 | 51.5 | 375.7 μS |
| UNKNOWN | 4 | 53.6 | 324.7 μS |
| UNKNOWN | 5 | 68.6 | 284.0 μS |
| BENZ | 6 | 78.3 | 102.5 PPB |
| UNKNOWN | 7 | 38.3 | 278.7 μS |
| UNKNOWN | 8 | 109.4 | 293.1 μS |

PHOTOVAC

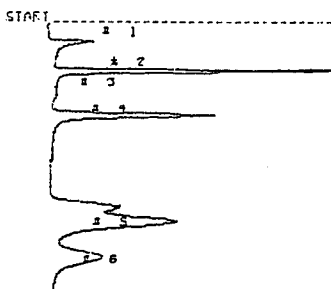


STOP 4 432.0
 SAMPLE LIBRARY 2 JUL 13 1994 18:33
 ANALYSIS # 48 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 021-024 10.5-11

COMPOUND NAME PEAK R.T. AREA/PPM

| | | | |
|-------------|----|-------|-----------|
| UNKNOWN | 1 | 32.4 | 4.3 US |
| UNKNOWN | 2 | 39.5 | 12.9 US |
| UNKNOWN | 3 | 55.3 | 28.3 US |
| UNKNOWN | 4 | 62.7 | 6.2 US |
| BENZ | 5 | 92.4 | 6.104 PPM |
| UNKNOWN | 9 | 126.7 | 938.9 μS |
| TOLUENE | 8 | 151.5 | 146.4 PPB |
| UNKNOWN | 9 | 175.6 | 262.4 μS |
| UNKNOWN | 10 | 214.3 | 94.9 μS |
| UNKNOWN | 11 | 266.2 | 121.8 μS |
| EBEN, MPXYL | 12 | 305.5 | 403.8 PPB |
| EBEN, MPXYL | 13 | 328.3 | 272.5 PPB |

PHOTOVAC



STOP 4 432.0
 SAMPLE LIBRARY 2 JUL 13 1994 18:51
 ANALYSIS # 49 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 1 PPM

COMPOUND NAME PEAK R.T. AREA/PPM

| | | | |
|-------------|---|-------|-----------|
| UNKNOWN | 1 | 31.7 | 1.7 US |
| BENZ | 2 | 77.7 | 844.7 PPB |
| UNKNOWN | 3 | 111.0 | 390.4 μS |
| TOLUENE | 4 | 152.6 | 674.4 PPB |
| EBEN, MPXYL | 5 | 327.1 | 2.055 PPM |

PHOTOVAC

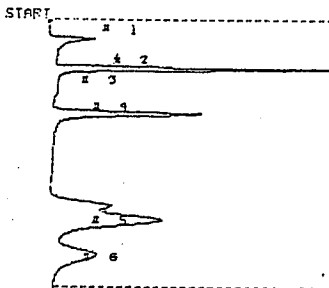
CALIBRATED PEAK 2, BENZ

SAMPLE LIBRARY 2 JUL 13 1994 18:53
 ANALYSIS # 49 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 1 PPM

COMPOUND NAME PEAK R.T. AREA/PPM

| | | | |
|-------------|---|-------|-----------|
| UNKNOWN | 1 | 31.7 | 1.7 US |
| BENZ | 2 | 77.7 | 1.000 PPM |
| UNKNOWN | 3 | 111.0 | 390.4 μS |
| TOLUENE | 4 | 152.6 | 238.4 PPB |
| EBEN, MPXYL | 5 | 327.1 | 2.433 PPM |

PHOTOVAC



STOP 4 432.0
 SAMPLE LIBRARY 2 JUL 13 1994 19:14
 ANALYSIS # 50 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2 1 PPM

COMPOUND NAME PEAK R.T. AREA/PPM

| | | | |
|---------|---|-------|----------|
| UNKNOWN | 1 | 32.3 | 1.7 US |
| UNKNOWN | 2 | 77.3 | 6.6 US |
| UNKNOWN | 3 | 111.0 | 384.5 μS |
| UNKNOWN | 4 | 152.6 | 4.2 US |
| UNKNOWN | 5 | 327.1 | 10.9 US |

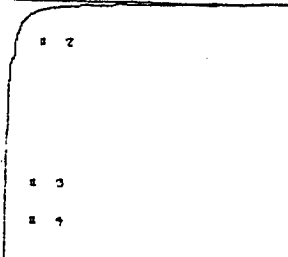
PHOTOVAC

2 COMPOUND ID # R.T. LIMIT

| | | | |
|-------------|---|-------|-----------|
| BENZ | 1 | 77.3 | 1.000 PPM |
| TOLUENE | 2 | 152.6 | 1.000 PPM |
| EBENZ MPXYL | 3 | 327.1 | 1.000 PPM |

PHOTOVAC

START

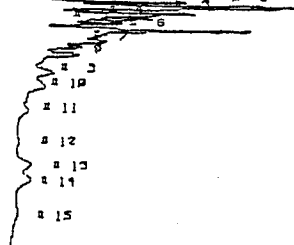


STOP @ 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 19:18
 ANALYSIS # 51 J BYRD, JR
 INTERNAL TEMP 34 DULUTH ANG8
 GAIN 2
 AIR BLANK

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|----------|
| UNKNOWN | 1 | 31.5 | 2.5 US |

PHOTOVAC

START

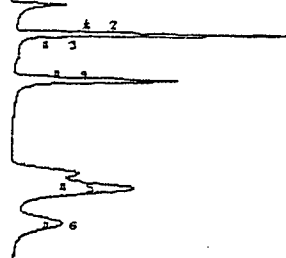


STOP @ 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 19:30
 ANALYSIS # 52 J BYRD, JR
 INTERNAL TEMP 33 DULUTH ANG8
 GAIN 2 021-024 10.5-11

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|-------|-------|-----------------|
| UNKNOWN | 1 | 32.6 | 2.0 US |
| UNKNOWN | 2 | 33.8 | 6.1 US |
| UNKNOWN | 3 | 51.5 | 3.9 US |
| UNKNOWN | 4 | 59.6 | 2.5 US |
| UNKNOWN | 5 | 68.6 | 1.9 US |
| BENZ | 6 | 79.9 | 1.077 PPM |
| UNKNOWN | 7 | 38.2 | 2.5 US |
| UNKNOWN | 8 | 120.8 | 328.2 PPM |
| TOLUENE | 9 | 151.5 | 96.42 PPM |
| UNKNOWN | 10 | 175.6 | 122.0 PPM |
| UNKNOWN | 11 | 214.3 | 63.3 PPM |
| UNKNOWN | 12 | 266.2 | 28.8 PPM |
| UNKNOWN | 13 | 303.5 | 139.4 PPM |
| BENZ | MPXYL | 14 | 323.3 182.9 PPM |

PHOTOVAC

START

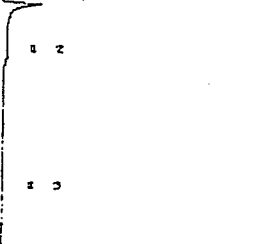


STOP @ 430.0
 SAMPLE LIBRARY 2 JUL 12 1994 19:46
 ANALYSIS # 53 J BYRD, JR
 INTERNAL TEMP 33 DULUTH ANG8
 GAIN 2 1 PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|-------|-------|-----------------|
| UNKNOWN | 1 | 32.3 | 1.3 US |
| BENZ | 2 | 124.3 | 42.73 PPM |
| UNKNOWN | 3 | 171.3 | 1.113 PPM |
| BENZ | MPXYL | 5 | 327.1 3.100 PPM |

PHOTOVAC

START



STOP @ 430.0
 SAMPLE LIBRARY 2 JUL 13 1994 19:56
 ANALYSIS # 54 J BYRD, JR
 INTERNAL TEMP 33 DULUTH ANG8
 GAIN 2 AIR

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|----------|
| UNKNOWN | 1 | 32.3 | 1.2 US |

PHOTOVAC

JUL 14 1994 9:10

FIELD: 23
POWER: 43

| SAMPLE | 0.0 | 10.0 |
|--------|-----|-------|
| AL | 0.0 | 0.0 |
| EVEN 3 | 0.0 | 100.0 |
| EVEN 4 | 0.0 | 0.0 |
| EVEN 5 | 0.0 | 0.0 |
| EVEN 6 | 0.0 | 0.0 |
| EVEN 7 | 0.0 | 0.0 |
| EVEN 8 | 0.0 | 0.0 |

PHOTOVAC

START



STOP 8 430.0
SAMPLE LIBRARY 1 JUL 14 1994 9:5
ANALYSIS # 3 J BYRD, JR.
INTERNAL TEMP 23 DULUTH ANG
GAIN 10 100 PPD

COMPOUND NAME PEAK R.T. AREA/PPD

| UNKNOWN | 2 | 26.4 | 11.4 | US |
|---------|---|-------|------|----|
| UNKNOWN | 3 | 180.0 | 4.13 | US |
| UNKNOWN | 4 | 200.0 | 4.13 | US |

PHOTOVAC

START



STOP 8 430.0
SAMPLE LIBRARY 1 JUL 14 1994 9:21
ANALYSIS # 4 J BYRD, JR.
INTERNAL TEMP 23 DULUTH ANG
GAIN 5 100 PPD

COMPOUND NAME PEAK R.T. AREA/PPD

| UNKNOWN | 2 | 22.0 | 2.7 | US |
|--|---|-------|-------|----|
| UNKNOWN <th>3</th> <th>21.9</th> <th>377.8</th> <th>US</th> | 3 | 21.9 | 377.8 | US |
| UNKNOWN <th>5</th> <th>159.5</th> <th>992.2</th> <th>US</th> | 5 | 159.5 | 992.2 | US |
| UNKNOWN <th>7</th> <th>216.1</th> <th>713.3</th> <th>US</th> | 7 | 216.1 | 713.3 | US |
| UNKNOWN <th>8</th> <th>330.5</th> <th>2.3</th> <th>US</th> | 8 | 330.5 | 2.3 | US |

PHOTOVAC

1 COMPOUND 10 # R.T. LIMIT

| COMPOUND | 10 # | R.T. | LIMIT |
|-----------|------|-------|-----------|
| BENZENE | 1 | 81.3 | 100.0 PPD |
| TOLUENE | 2 | 150.5 | 100.0 PPD |
| E-BENZENE | 3 | 216.1 | 100.0 PPD |
| MP-XYLENE | 4 | 330.5 | 100.0 PPD |

PHOTOVAC

START



STOP 8 430.0
SAMPLE LIBRARY 1 JUL 14 1994 9:33
ANALYSIS # 5 J BYRD, JR.
INTERNAL TEMP 23 DULUTH ANG
GAIN 5 AIR

COMPOUND NAME PEAK R.T. AREA/PPD

| UNKNOWN | 1 | 22.0 | 1.6 | US |
|---------|---|------|-----|----|
|---------|---|------|-----|----|

PHOTOVAC

START



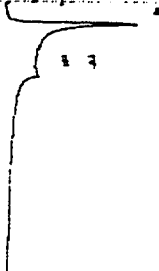
STOP 8 430.0
SAMPLE LIBRARY 1 JUL 14 1994 9:43
ANALYSIS # 6 J BYRD, JR.
INTERNAL TEMP 30 DULUTH ANG
GAIN 5 021-021 2.0-2.5

COMPOUND NAME PEAK R.T. AREA/PPD

| UNKNOWN | 2 | 22.0 | 4.2 | US |
|---------|---|------|-----|----|
|---------|---|------|-----|----|

PHOTOVAC

START



STOP 8 430.0
SAMPLE LIBRARY 1 JUL 14 1994 9:53
INTERNAL TEMP 30 DULUTH ANG
GAIN 5 021-021 2.0-2.5

COMPOUND NAME PEAK R.T. AREA/PPD

| UNKNOWN | 2 | 22.0 | 2.5 | US |
|---------|---|------|-----|----|
|---------|---|------|-----|----|

PHOTOVAC

START



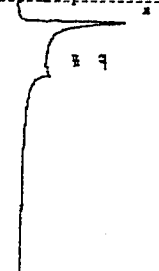
STOP 8 430.0
SAMPLE LIBRARY 1 JUL 14 1994 10:0
ANALYSIS # 8 J BYRD, JR.
INTERNAL TEMP 30 DULUTH ANG
GAIN 5 021-020 10.5-11.5

COMPOUND NAME PEAK R.T. AREA/PPD

| UNKNOWN | 2 | 22.0 | 2.0 | US |
|---------|---|------|-----|----|
|---------|---|------|-----|----|

PHOTOVAC

START

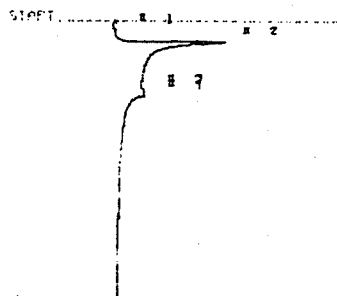


STOP 8 430.0
SAMPLE LIBRARY 1 JUL 14 1994 10:14
ANALYSIS # 9 J BYRD, JR.
INTERNAL TEMP 30 DULUTH ANG
GAIN 5 021-021 6.5-7.0

COMPOUND NAME PEAK R.T. AREA/PPD

| UNKNOWN | 2 | 22.0 | 2.0 | US |
|---------|---|------|-----|----|
|---------|---|------|-----|----|

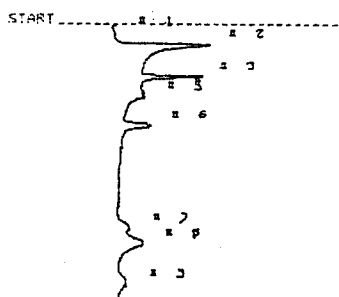
PHOTOVAC



STOP 8 430.0
 SAMPLE LIBRARY 1 JUL 14 1994 10:24
 ANALYSIS # 10 J BYRD, JR.
 INTERNAL TEMP 31 DULUTH ANGUS
 GAIN 5 021-024 6.5-7.0

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|----------|
| UNKNOWN | 2 | 32.4 | 2.0 US |

PHOTOVAC



STOP 8 430.0
 SAMPLE LIBRARY 1 JUL 14 1994 10:33
 ANALYSIS # 11 J BYRD, JR.
 INTERNAL TEMP 31 DULUTH ANGUS
 GAIN 5 100 PPB

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 2 | 32.4 | 2.3 US |
| BENZENE | 3 | 82.0 | 87.81 PPB |
| TOLUENE | 6 | 153.1 | 85.81 PPB |
| E-BENZENE | 7 | 312.3 | 28.56 PPB |
| MP-XYLENE | 9 | 341.5 | 32.27 PPB |

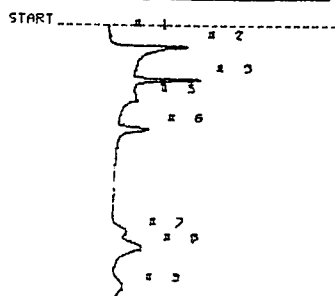
PHOTOVAC

CALIBRATED PEAK 3, BENZENE

SAMPLE LIBRARY 1 JUL 14 1994 10:34
 ANALYSIS # 11 J BYRD, JR.
 INTERNAL TEMP 31 DULUTH ANGUS
 GAIN 5 100 PPB

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 2 | 32.4 | 2.0 US |
| BENZENE | 3 | 82.0 | 100.0 PPB |
| TOLUENE | 6 | 153.1 | 87.81 PPB |
| E-BENZENE | 7 | 312.3 | 34.81 PPB |
| MP-XYLENE | 9 | 341.5 | 105.0 PPB |

PHOTOVAC



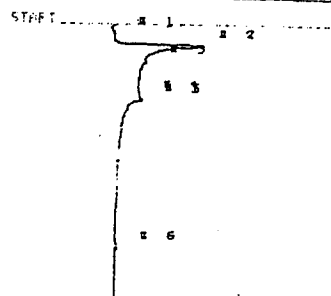
STOP 8 430.0
 SAMPLE LIBRARY 1 JUL 14 1994 11:21
 ANALYSIS # 12 J BYRD, JR.
 INTERNAL TEMP 32 DULUTH ANGUS
 GAIN 5 100 PPB

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 2 | 32.2 | 1.7 US |
| UNKNOWN | 3 | 82.2 | 324.4 MUS |
| UNKNOWN | 6 | 153.7 | 623.3 MUS |
| UNKNOWN | 7 | 313.1 | 222.3 MUS |
| UNKNOWN | 9 | 343.1 | 1.3 US |

PHOTOVAC

| 1 | COMPOUND | ID # | R.T. | LIMIT |
|-----------|----------|-------|-----------|-------|
| BENZENE | 1 | 82.2 | 100.0 PPB | |
| TOLUENE | 2 | 153.7 | 100.0 PPB | |
| E-BENZENE | 3 | 313.1 | 100.0 PPB | |
| MP-XYLENE | 4 | 343.1 | 100.0 PPB | |

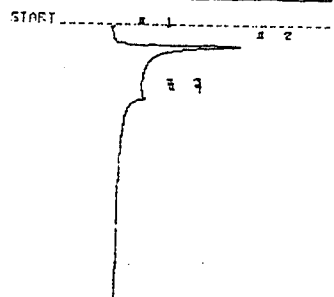
PHOTOVAC



STOP 8 430.0
 SAMPLE LIBRARY 1 JUL 14 1994 11:34
 ANALYSIS # 13 J BYRD, JR.
 INTERNAL TEMP 32 DULUTH ANGUS
 GAIN 5 AIR

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|----------|
| UNKNOWN | 2 | 32.5 | 2.0 US |

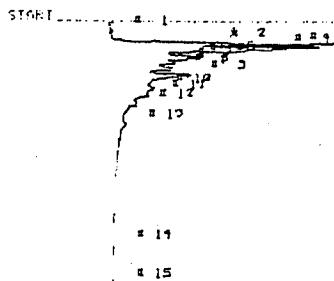
PHOTOVAC



STOP 8 430.0
 SAMPLE LIBRARY 1 JUL 14 1994 11:44
 ANALYSIS # 14 J BYRD, JR.
 INTERNAL TEMP 32 DULUTH ANGUS
 GAIN 5 021-024 6.5-7.0

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|----------|
| UNKNOWN | 2 | 32.2 | 3.3 US |

PHOTOVAC



STOP 9 170.0

SAMPLE LIBRARY 1 JUL 14 1934 11:54

INTERNAL TEMP 32 DULUTH ANG

GAIN 5 021-021 11.5-12

COMPOUND NAME PEAK R.T. AREA/PPM

UNKNOWN 2 33.1 3.0 US

UNKNOWN 3 38.5 1.8 US

UNKNOWN 4 41.1 2.2 US

UNKNOWN 5 52.2 373.5 PPM

UNKNOWN 6 56.5 154.8 PPM

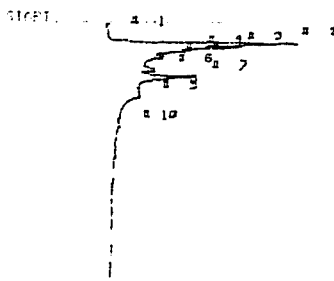
UNKNOWN 7 71.6 126.2 PPM

BENZENE 8 82.2 23.18 PPM

UNKNOWN 10 130.0 44.8 PPM

TOLUENE 12 153.0 18.11 PPM

PHOTOVAC



STOP 9 170.0

SAMPLE LIBRARY 1 JUL 14 1934 12:15

ANALYSIS # 17 J BYRD, JR.

INTERNAL TEMP 33 DULUTH ANG

GAIN 5 021-020 6.5-7.0

COMPOUND NAME PEAK R.T. AREA/PPM

UNKNOWN 2 32.9 3.1 US

UNKNOWN 3 38.3 1.8 US

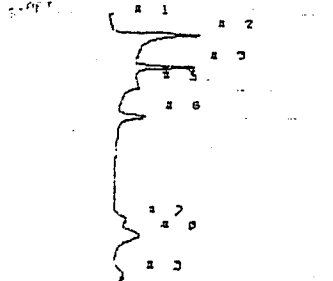
UNKNOWN 4 42.6 316.1 PPM

UNKNOWN 5 52.4 119.3 PPM

UNKNOWN 6 71.7 153.4 PPM

BENZENE 7 82.0 100.0 PPM

PHOTOVAC



STOP 9 170.0

SAMPLE LIBRARY 1 JUL 14 1934 12:06

ANALYSIS # 18 J BYRD, JR.

INTERNAL TEMP 33 DULUTH ANG

GAIN 5 100 PPM

COMPOUND NAME PEAK R.T. AREA/PPM

UNKNOWN 2 33.0 2.0 US

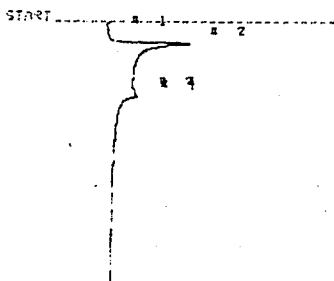
BENZENE 3 38.3 32.10 PPM

TOLUENE 6 153.0 36.75 PPM

E-BENZENE 7 222.0 37.84 PPM

PP-XYLENE 8 244.7 100.0 PPM

PHOTOVAC



STOP 9 400.0

SAMPLE LIBRARY 1 JUL 14 1934 12:14

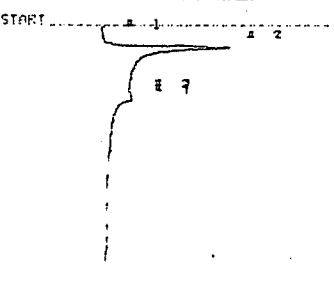
INTERNAL TEMP 33 DULUTH ANG

GAIN 5 021-022 1.5-2.0

COMPOUND NAME PEAK R.T. AREA/PPM

UNKNOWN 2 32.5 1.9 US

PHOTOVAC



STOP 9 400.0

SAMPLE LIBRARY 1 JUL 14 1934 12:26

INTERNAL TEMP 33 DULUTH ANG

GAIN 5 021-020 1.5-2.0

COMPOUND NAME PEAK R.T. AREA/PPM

UNKNOWN 2 32.6 3.2 US

PHOTOVAC

CALIBRATED PEAK 3, BENZENE

SAMPLE LIBRARY 1 JUL 14 1934 12:37

ANALYSIS # 19 J BYRD, JR.

INTERNAL TEMP 33 DULUTH ANG

GAIN 5 100 PPM

COMPOUND NAME PEAK R.T. AREA/PPM

UNKNOWN 2 33.0 2.3 US

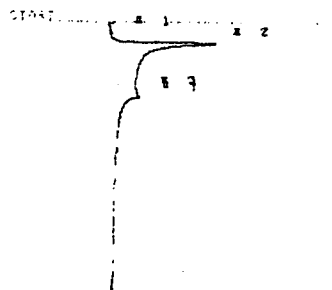
BENZENE 3 38.3 100.0 PPM

TOLUENE 6 153.0 37.32 PPM

E-BENZENE 7 222.0 105.2 PPM

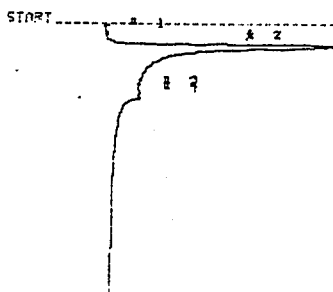
PP-XYLENE 8 244.7 202.2 PPM

PHOTOVAC



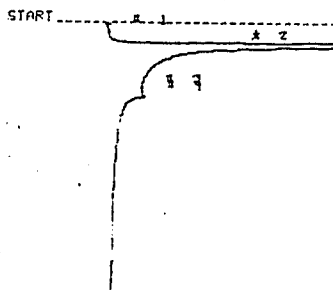
STOP # 430.0
 SAMPLE LIBRARY 1 JUL 14 1934 12:50
 ANALYSIS # 22 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG5
 GAIN 5 AIR
 COMPOUND NAME PEAK R.T. AREA/PPM
 UNKNOWN 2 22.6 2.1 US

PHOTOVAC



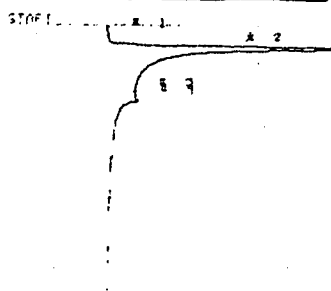
STOP # 430.0
 SAMPLE LIBRARY 1 JUL 14 1934 13:05
 ANALYSIS # 21 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG5
 GAIN 5 021-018 2.0-2.5
 COMPOUND NAME PEAK R.T. AREA/PPM
 UNKNOWN 2 23.1 0.7 US

PHOTOVAC



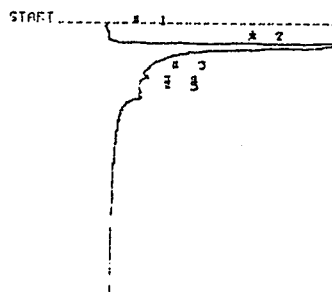
STOP # 430.0
 SAMPLE LIBRARY 1 JUL 14 1934 13:46
 ANALYSIS # 22 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG5
 GAIN 5 021-018 13.5-14
 COMPOUND NAME PEAK R.T. AREA/PPM
 UNKNOWN 2 23.5 10.9 US

PHOTOVAC



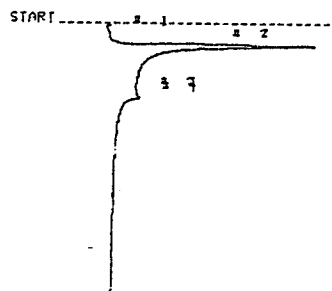
STOP # 430.0
 SAMPLE LIBRARY 1 JUL 14 1934 13:58
 ANALYSIS # 23 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG5
 GAIN 5 021-018 9.5-10.0
 COMPOUND NAME PEAK R.T. AREA/PPM
 UNKNOWN 2 23.1 0.0 US

PHOTOVAC



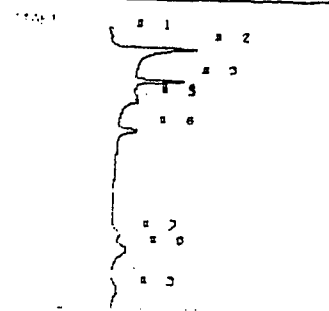
STOP # 430.0
 SAMPLE LIBRARY 1 JUL 14 1934 14:10
 ANALYSIS # 24 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG5
 GAIN 5 021-013 14.5-15
 COMPOUND NAME PEAK R.T. AREA/PPM
 UNKNOWN 2 23.2 0.3 US
 BENZENE 3 22.0 2.311 PPM

PHOTOVAC



STOP # 430.0
 SAMPLE LIBRARY 1 JUL 14 1934 14:20
 ANALYSIS # 25 J BYRD, JR.
 INTERNAL TEMP 35 DULUTH ANG5
 GAIN 5 021-018 13.5-14
 COMPOUND NAME PEAK R.T. AREA/PPM
 UNKNOWN 2 23.0 8.1 US

PHOTOVAC



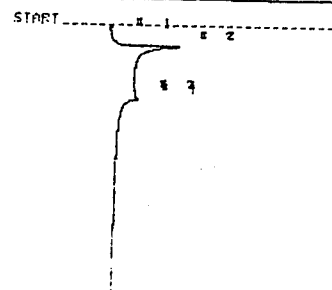
STOP # 430.0
 SAMPLE LIBRARY 1 JUL 14 1934 14:31
 ANALYSIS # 26 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG5
 GAIN 5 100 PPM
 COMPOUND NAME PEAK R.T. AREA/PPM
 UNKNOWN 2 22.7 1.3 US
 BENZENE 3 22.1 100.0 PPM
 TOLUENE 6 133.2 80.31 PPM
 ETHYLENE 7 123.0 30.13 PPM
 PROPYLENE 8 215.2 126.6 PPM

PHOTOVAC

CALIBRATED PEAK 3, BENZENE
 SAMPLE LIBRARY 1 JUL 14 1934 14:36
 ANALYSIS # 26 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG5
 GAIN 5 100 PPM

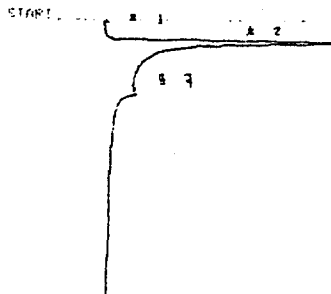
COMPOUND NAME PEAK R.T. AREA/PPM
 UNKNOWN 2 22.7 1.3 US
 BENZENE 3 22.1 100.0 PPM
 TOLUENE 6 133.2 80.31 PPM
 ETHYLENE 7 123.0 30.13 PPM
 PROPYLENE 8 215.2 126.6 PPM

PHOTOVAC



STOP # 430.0
 SAMPLE LIBRARY 1 JUL 14 1934 14:47
 ANALYSIS # 27 J BYRD, JR.
 INTERNAL TEMP 35 DULUTH ANG5
 GAIN 5 AIR
 COMPOUND NAME PEAK R.T. AREA/PPM
 UNKNOWN 2 22.7 1.3 US

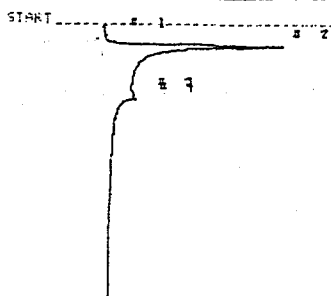
PHOTOVAC



STOP 2 100.0
SAMPLE LIBRARY 1 JUL 14 1994 15:57
ANALYSIS # 20 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANGCS
GAIN 5 021-016 2.0-2.5

COMPOUND NAME PEAK R.T. AREA/PPM
UNKNOWN 2 20.0 4.0 US

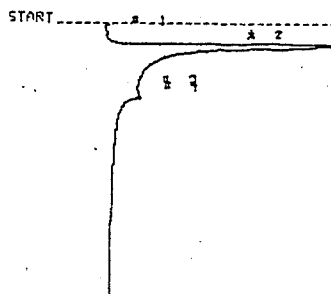
PHOTOVAC



STOP 2 400.0
SAMPLE LIBRARY 1 JUL 14 1994 15:9
ANALYSIS # 20 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANGCS
GAIN 5 021-016 6.5-7.0

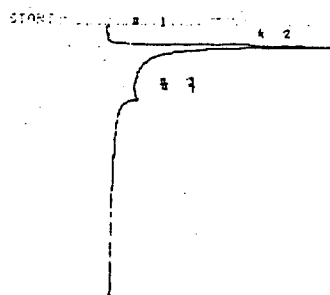
COMPOUND NAME PEAK R.T. AREA/PPM
UNKNOWN 2 22.2 4.0 US

PHOTOVAC



STOP 2 100.0
SAMPLE LIBRARY 1 JUL 14 1994 15:20
ANALYSIS # 30 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANGCS
GAIN 5 021-016 10.5-11
COMPOUND NAME PEAK R.T. AREA/PPM
UNKNOWN 2 23.1 3.2 US

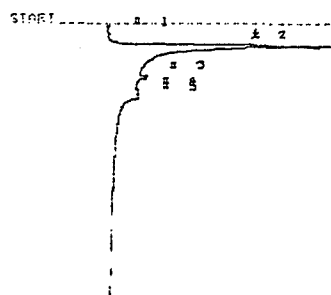
PHOTOVAC



STOP 2 400.0
SAMPLE LIBRARY 1 JUL 14 1994 15:30
ANALYSIS # 31 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANGCS
GAIN 5 021-013 6.5-7.0

COMPOUND NAME PEAK R.T. AREA/PPM
UNKNOWN 2 22.4 5.1 US

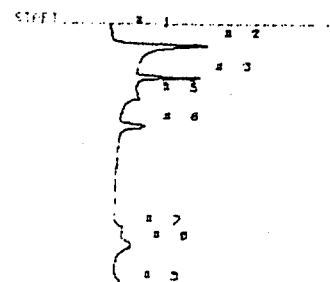
PHOTOVAC



STOP 2 400.0
SAMPLE LIBRARY 1 JUL 14 1994 15:40
ANALYSIS # 32 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANGCS
GAIN 5 021-019 10.5-11

COMPOUND NAME PEAK R.T. AREA/PPM
UNKNOWN 2 22.5 4.2 US
BENZENE 3 20.1 16.4 PPM

PHOTOVAC



STOP 2 400.0
SAMPLE LIBRARY 1 JUL 14 1994 15:50
ANALYSIS # 33 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANGCS
GAIN 5 100 PPM

COMPOUND NAME PEAK R.T. AREA/PPM
UNKNOWN 2 22.2 2.0 US
BENZENE 3 21.4 122.6 PPM
TOLUENE 6 132.0 105.7 PPM
BENZOTRIENYL 7 212.6 102.1 PPM
BENZOTRIENYL 8 241.3 164.1 PPM

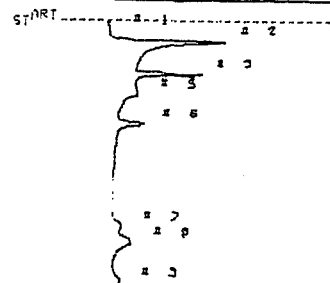
PHOTOVAC

CALIBRATED PEAK 3, BENZENE

SAMPLE LIBRARY 1 JUL 14 1994 15:54
ANALYSIS # 33 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANGCS
GAIN 5 100 PPM

COMPOUND NAME PEAK R.T. AREA/PPM
UNKNOWN 2 22.2 2.0 US
BENZENE 3 21.4 100.0 PPM
TOLUENE 6 132.5 91.9 PPM
BENZOTRIENYL 7 212.4 92.1 PPM
BENZOTRIENYL 8 241.3 179.6 PPM

PHOTOVAC



STOP 2 400.0
SAMPLE LIBRARY 1 JUL 14 1994 16:16
ANALYSIS # 34 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANGCS
GAIN 5 100 PPM

COMPOUND NAME PEAK R.T. AREA/PPM
UNKNOWN 2 22.3 2.0 US
UNKNOWN 3 21.3 244.3 PPM
UNKNOWN 6 132.2 628.2 PPM
UNKNOWN 7 212.2 173.8 PPM
UNKNOWN 8 241.6 624.6 PPM

PHOTOVAC

1 COMPOUND ID # R.T. LIMIT
 BENZENE 1 81.5 100.0 PPS
 TOLUENE 2 150.7 100.0 PPS
 E-BENZENE 3 210.7 100.0 PPS
 PP-XYLENE 4 241.6 100.0 PPS

PHOTOVAC

START 1 2

STOP # 120.0
 SAMPLE LIBRARY 1 JUL 14 1994 16:18
 ANALYSIS # 35 J BYRD, JR.
 INTERNAL TEMP 35 DULUTH ANG
 GAIN 5 100 PPS
 COMPOUND NAME PEAK R.T. AREA/PPM
 UNKNOWN 2 122.2 2.0 US

PHOTOVAC

START 1 2

STOP # 120.0
 SAMPLE LIBRARY 1 JUL 14 1994 17:13
 ANALYSIS # 36 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG
 GAIN 5 021-015 1.5-2.0
 COMPOUND NAME PEAK R.T. AREA/PPM
 UNKNOWN 2 81.9 0.8 US

PHOTOVAC

START 1 2

STOP # 120.0
 SAMPLE LIBRARY 1 JUL 14 1994 17:19
 ANALYSIS # 37 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG
 GAIN 5 021-015 6.5-7.0
 COMPOUND NAME PEAK R.T. AREA/PPM
 UNKNOWN 2 122.2 2.0 US

PHOTOVAC

START 1 2

STOP # 120.0
 SAMPLE LIBRARY 1 JUL 14 1994 17:29
 ANALYSIS # 38 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG
 GAIN 5 021-015 10.5-11
 COMPOUND NAME PEAK R.T. AREA/PPM
 UNKNOWN 2 122.2 2.0 US

PHOTOVAC

START 1 2

STOP # 120.0
 SAMPLE LIBRARY 1 JUL 14 1994 17:42
 ANALYSIS # 39 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG
 GAIN 5 021-015 12-13.5
 COMPOUND NAME PEAK R.T. AREA/PPM
 UNKNOWN 2 122.2 2.0 US

PHOTOVAC

START 1 2

STOP # 120.0
 SAMPLE LIBRARY 1 JUL 14 1994 17:51
 ANALYSIS # 40 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG
 GAIN 5 100 PPS
 COMPOUND NAME PEAK R.T. AREA/PPM
 UNKNOWN 2 122.2 2.0 US
 BENZENE 3 81.5 100.0 PPS
 TOLUENE 4 150.7 100.0 PPS
 E-BENZENE 5 210.7 100.0 PPS
 PP-XYLENE 6 241.6 100.0 PPS

PHOTOVAC

CALIBRATED PEAK 3, BENZENE
 SAMPLE LIBRARY 1 JUL 14 1994 17:52
 ANALYSIS # 40 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 5 100 PPS

COMPOUND NAME PEAK R.T. AREA/PPM
 UNKNOWN 2 122.2 2.0 US
 BENZENE 3 81.5 100.0 PPS
 TOLUENE 4 150.7 100.0 PPS
 E-BENZENE 5 210.7 100.0 PPS
 PP-XYLENE 6 241.6 100.0 PPS

PHOTOVAC

START 1 2

STOP # 120.0
 SAMPLE LIBRARY 1 JUL 14 1994 18:14
 ANALYSIS # 41 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 5 AIR
 COMPOUND NAME PEAK R.T. AREA/PPM
 UNKNOWN 2 122.2 2.0 US

PHOTOVAC

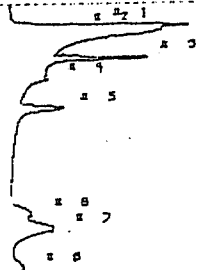
JUL 15 1994 3:23

FIELD: 30
POWER: 44

| SAMPLE | 0.0 | 10.0 |
|---------|-----|-------|
| CAL | 0.0 | 0.0 |
| EVENT 3 | 0.0 | 100.0 |
| EVENT 4 | 0.0 | 0.0 |
| EVENT 5 | 0.0 | 0.0 |
| EVENT 6 | 0.0 | 0.0 |
| EVENT 7 | 0.0 | 0.0 |
| EVENT 8 | 0.0 | 0.0 |

PHOTOVAC

START

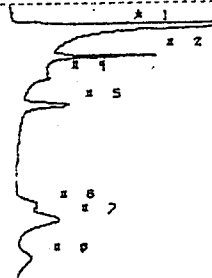


STOP 3 400.0
SAMPLE LIBRARY 1 JUL 15 1994 3:33
ANALYSIS # 1 J BYRD, JR.
INTERNAL TEMP 30 DULUTH ANG
GAIN 5 100 PPB

| COMPOUND NAME | PEAK | R.T. | AREA/PPB |
|---------------|------|-------|-----------|
| UNKNOWN | 1 | 32.5 | 0.6 US |
| UNKNOWN | 2 | 38.0 | 2.8 US |
| BENZENE | 3 | 82.0 | 100.0 PPB |
| TOLUENE | 4 | 150.0 | 221.0 PPB |
| E-PENTENE | 5 | 210.1 | 672.0 PPB |
| PP-XYLENE | 6 | 240.8 | 1.023 PPB |

PHOTOVAC

START



STOP 8 430.0
SAMPLE LIBRARY 1 JUL 15 1994 3:45
ANALYSIS # 2 J BYRD, JR.
INTERNAL TEMP 30 DULUTH ANG
GAIN 5 100 PPB

| COMPOUND NAME | PEAK | R.T. | AREA/PPB |
|---------------|------|-------|----------|
| UNKNOWN | 1 | 33.2 | 10.6 US |
| UNKNOWN | 2 | 38.1 | 1.9 US |
| UNKNOWN | 3 | 150.0 | 1.2 US |
| UNKNOWN | 4 | 211.5 | 1.2 US |
| UNKNOWN | 7 | 244.4 | 2.2 US |

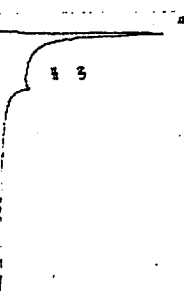
PHOTOVAC

1 COMPOUND ID # R.T. LIMIT

| | | | |
|--------------|---|-------|-----------|
| BENZENE | 1 | 80.1 | 100.0 PPB |
| TOLUENE | 2 | 155.3 | 100.0 PPB |
| ETHYLBENZENE | 3 | 211.6 | 100.0 PPB |
| PP-XYLENE | 4 | 229.4 | 100.0 PPB |

PHOTOVAC

START

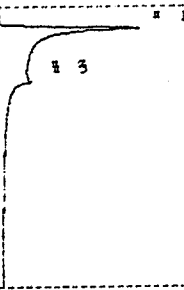


STOP 8 400.0
SAMPLE LIBRARY 1 JUL 15 1994 3:53
ANALYSIS # 3 J BYRD, JR.
INTERNAL TEMP 30 DULUTH ANG
GAIN 5 AIR

| COMPOUND NAME | PEAK | R.T. | AREA/PPB |
|---------------|------|------|----------|
| UNKNOWN | 1 | 32.1 | 4.5 US |

PHOTOVAC

START

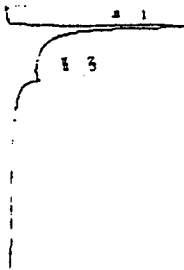


STOP 8 430.0
SAMPLE LIBRARY 1 JUL 15 1994 10:35
ANALYSIS # 4 J BYRD, JR.
INTERNAL TEMP 31 DULUTH ANG
GAIN 5 021-015 2.0-2.5

| COMPOUND NAME | PEAK | R.T. | AREA/PPB |
|---------------|------|------|----------|
| UNKNOWN | 1 | 32.1 | 0.7 US |

PHOTOVAC

START

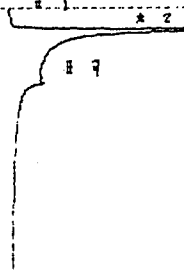


STOP 3 400.0
SAMPLE LIBRARY 1 JUL 15 1994 10:45
ANALYSIS # 5 J BYRD, JR.
INTERNAL TEMP 31 DULUTH ANG
GAIN 5 021-017 5.5-6.0

| COMPOUND NAME | PEAK | R.T. | AREA/PPB |
|---------------|------|------|----------|
| UNKNOWN | 1 | 32.2 | 4.0 US |

PHOTOVAC

START

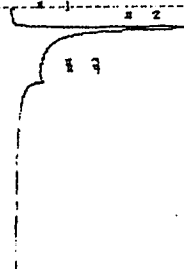


STOP 3 400.0
SAMPLE LIBRARY 1 JUL 15 1994 10:56
ANALYSIS # 6 J BYRD, JR.
INTERNAL TEMP 31 DULUTH ANG
GAIN 5 021-017 10.5-11

| COMPOUND NAME | PEAK | R.T. | AREA/PPB |
|---------------|------|------|----------|
| UNKNOWN | 2 | 32.1 | 2.8 US |

PHOTOVAC

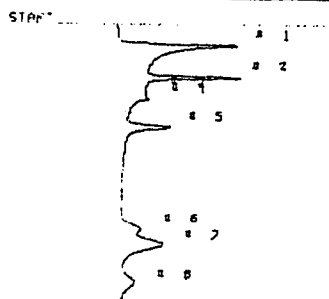
START



STOP 9 400.0
SAMPLE LIBRARY 1 JUL 15 1994 11:7
ANALYSIS # 7 J BYRD, JR.
INTERNAL TEMP 32 DULUTH ANG
GAIN 5 021-017 14.5-15

| COMPOUND NAME | PEAK | R.T. | AREA/PPB |
|---------------|------|------|----------|
| UNKNOWN | 2 | 32.2 | 3.1 US |

PHOTOVAC



STOP 9 430.0
 SAMPLE LIBRARY 1 JUL 15 1994 11:31
 ANALYSIS # 8 J BYRD, JR.
 INTERNAL TEMP 32 DULUTH ANG
 GAIN 5 100 PPS

COMPOUND NAME PEAK R.T. AREA/PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 1 | 31.8 | 6.6 US |
| BENZENE | 2 | 80.4 | 111.2 PPS |
| TOLUENE | 3 | 136.3 | 116.2 PPS |
| ETHYLBENZENE | 4 | 156.3 | 170.0 PPS |
| MP-XYLENE | 5 | 222.6 | 222.6 PPS |

PHOTOVAC

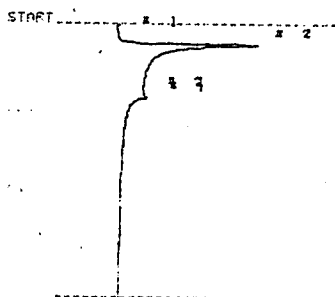
CALIBRATED PEAK 2, BENZENE

SAMPLE LIBRARY 1 JUL 15 1994 11:32
 ANALYSIS # 8 J BYRD, JR.
 INTERNAL TEMP 32 DULUTH ANG
 GAIN 5 100 PPS

COMPOUND NAME PEAK R.T. AREA/PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 1 | 31.8 | 6.6 US |
| BENZENE | 2 | 80.4 | 111.2 PPS |
| TOLUENE | 3 | 136.3 | 116.2 PPS |
| ETHYLBENZENE | 4 | 156.3 | 170.0 PPS |
| MP-XYLENE | 5 | 222.6 | 222.6 PPS |

PHOTOVAC

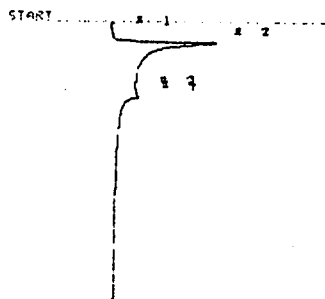


STOP 9 430.0
 SAMPLE LIBRARY 1 JUL 15 1994 11:42
 ANALYSIS # 9 J BYRD, JR.
 INTERNAL TEMP 32 DULUTH ANG
 GAIN 5 AIR

COMPOUND NAME PEAK R.T. AREA/PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|----------|
| UNKNOWN | 2 | 31.8 | 6.6 US |

PHOTOVAC

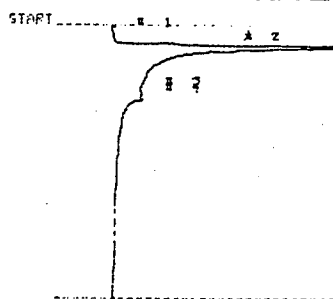


STOP 9 430.0
 SAMPLE LIBRARY 1 JUL 15 1994 12:47
 ANALYSIS # 10 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 5 021-026MW 2-2.5

COMPOUND NAME PEAK R.T. AREA/PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|----------|
| UNKNOWN | 2 | 31.8 | 6.6 US |

PHOTOVAC

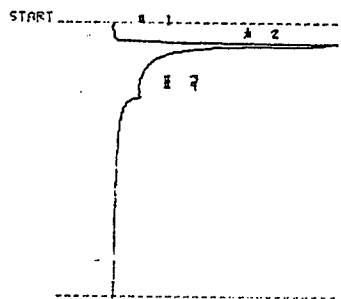


STOP 9 430.0
 SAMPLE LIBRARY 1 JUL 15 1994 12:57
 ANALYSIS # 11 J BYRD, JR.
 INTERNAL TEMP 33 DULUTH ANG
 GAIN 5 021-026MW 8.5-5

COMPOUND NAME PEAK R.T. AREA/PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|----------|
| UNKNOWN | 2 | 31.8 | 6.6 US |

PHOTOVAC

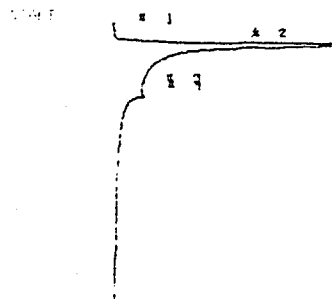


STOP 9 430.0
 SAMPLE LIBRARY 1 JUL 15 1994 13: 7
 ANALYSIS # 12 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG
 GAIN 5 021-026MW 11-11.5

COMPOUND NAME PEAK R.T. AREA/PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|----------|
| UNKNOWN | 2 | 31.8 | 6.6 US |

PHOTOVAC

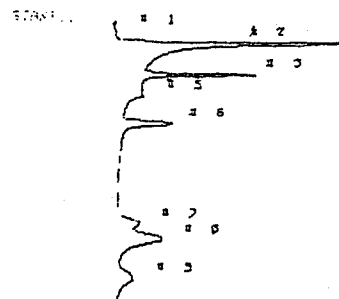


STOP 9 430.0
 SAMPLE LIBRARY 1 JUL 15 1994 13:10
 ANALYSIS # 13 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG
 GAIN 5 021-026MW 16.5-17

COMPOUND NAME PEAK R.T. AREA/PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|------|----------|
| UNKNOWN | 2 | 31.8 | 6.6 US |

PHOTOVAC



STOP 9 430.0
 SAMPLE LIBRARY 1 JUL 15 1994 13:26
 ANALYSIS # 14 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG
 GAIN 5 100 PPS

COMPOUND NAME PEAK R.T. AREA/PPM

| COMPOUND NAME | PEAK | R.T. | AREA/PPM |
|---------------|------|-------|-----------|
| UNKNOWN | 2 | 31.8 | 6.6 US |
| BENZENE | 3 | 80.4 | 111.2 PPS |
| TOLUENE | 4 | 136.3 | 116.2 PPS |
| ETHYLBENZENE | 5 | 156.3 | 170.0 PPS |
| MP-XYLENE | 6 | 222.6 | 222.6 PPS |

PHOTOVAC

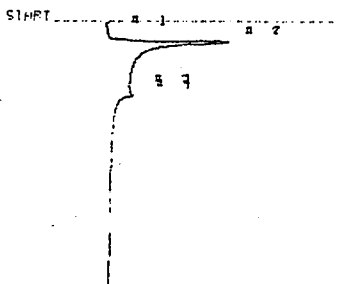
CALIBRATED PEAK 3, BENZENE

SAMPLE LIBRARY 1 JUL 15 1994 13:28
ANALYSIS # 14 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 5 100 PFB

COMPOUND NAME PEAK R.T. AREA/PFB

| | | | |
|--------------|---|-------|-----------|
| UNKNOWN | 2 | 101.0 | 100.0 PFB |
| BENZENE | 2 | 101.0 | 100.0 PFB |
| TOLUENE | 2 | 101.0 | 101.0 PFB |
| ETHYLBENZENE | 2 | 101.0 | 101.0 PFB |

PHOTOVAC



STOP # 100.0
SAMPLE LIBRARY 1 JUL 15 1994 13:28
ANALYSIS # 15 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 5 AIR

COMPOUND NAME PEAK R.T. AREA/PFB

| | | | |
|---------|---|-------|-----------|
| UNKNOWN | 2 | 101.0 | 100.0 PFB |
|---------|---|-------|-----------|

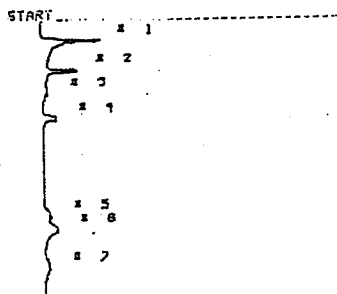
PHOTOVAC

JUL 18 1994 9:13

FIELD: 30
POWER: 11

| SAMPLE | 0.0 | 10.0 |
|---------|-----|-------|
| CAL | 0.0 | 0.0 |
| EVENT 3 | 0.0 | 100.0 |
| EVENT 4 | 0.0 | 0.0 |
| EVENT 5 | 0.0 | 0.0 |
| EVENT 6 | 0.0 | 0.0 |
| EVENT 7 | 0.0 | 0.0 |
| EVENT 8 | 0.0 | 0.0 |

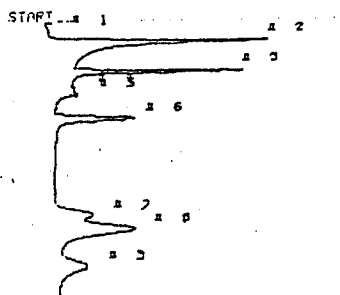
PHOTOVAC



STOP 8 430.3
SAMPLE LIBRARY 1 JUL 18 1994 10:14
ANALYSIS # 1 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 2 100 PPS

| COMPOUND NAME | PEAK | R.T. | AREA | PPS |
|---------------|------|-------|-------|-----|
| UNKNOWN | 1 | 31.2 | 225.0 | US |
| BENZENE | 2 | 77.2 | 60.0 | US |
| TOLUENE | 4 | 150.3 | 64.0 | US |
| ETHYLBENZENE | 3 | 90.0 | 11.0 | US |
| ETHYLBENZENE | 5 | 120.0 | 200.0 | PPS |
| UNKNOWN | 2 | 90.0 | 120.0 | US |

PHOTOVAC



STOP 8 430.3
SAMPLE LIBRARY 1 JUL 18 1994 10:53
ANALYSIS # 2 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 PPS

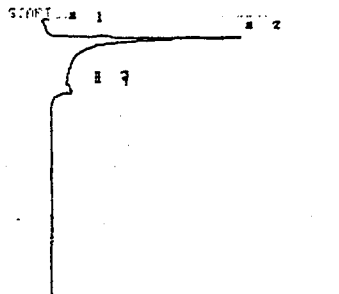
| COMPOUND NAME | PEAK | R.T. | AREA | PPS |
|---------------|------|-------|------|-----|
| UNKNOWN | 2 | 31.2 | 5.4 | US |
| UNKNOWN | 3 | 77.2 | 2.0 | US |
| UNKNOWN | 6 | 150.3 | 2.0 | US |
| UNKNOWN | 7 | 220.3 | 1.7 | US |
| UNKNOWN | 8 | 220.7 | 4.8 | US |

PHOTOVAC

1 COMPOUND ID # R.T. LIMIT

| | | | | |
|--------------|---|-------|-------|-----|
| BENZENE | 1 | 77.2 | 100.0 | PPS |
| TOLUENE | 2 | 150.3 | 100.0 | PPS |
| ETHYLBENZENE | 3 | 90.0 | 100.0 | PPS |
| ETHYLBENZENE | 1 | 105.4 | 100.0 | PPS |

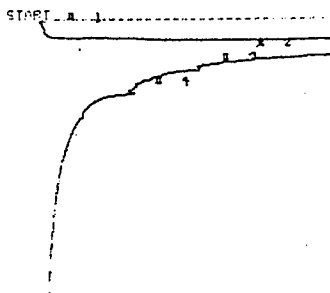
PHOTOVAC



STOP 8 430.3
SAMPLE LIBRARY 1 JUL 18 1994 11:17
ANALYSIS # 3 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 AIR

| COMPOUND NAME | PEAK | R.T. | AREA | PPS |
|---------------|------|------|------|-----|
| UNKNOWN | 2 | 31.2 | 4.8 | US |

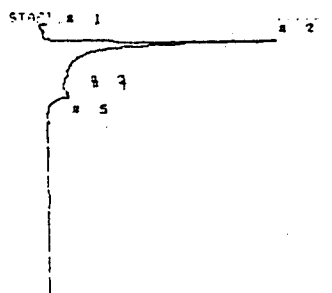
PHOTOVAC



STOP 8 430.3
SAMPLE LIBRARY 1 JUL 18 1994 11:15
ANALYSIS # 4 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 AIR

| COMPOUND NAME | PEAK | R.T. | AREA | PPS |
|---------------|------|------|-------|-----|
| UNKNOWN | 2 | 42.3 | 121.2 | US |

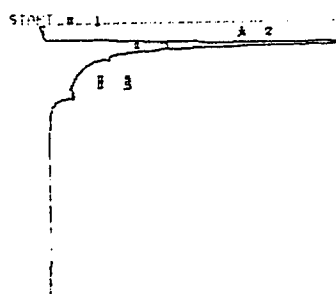
PHOTOVAC



STOP 8 430.3
SAMPLE LIBRARY 1 JUL 18 1994 11:44
ANALYSIS # 5 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 012-0160H 1.5-2

| COMPOUND NAME | PEAK | R.T. | AREA | PPS |
|---------------|------|------|------|-----|
| UNKNOWN | 2 | 31.2 | 4.8 | US |

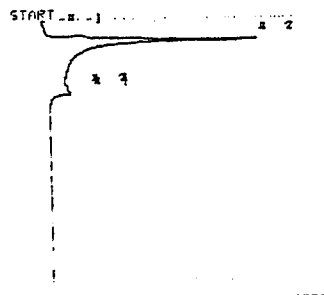
PHOTOVAC



STOP 8 430.3
SAMPLE LIBRARY 1 JUL 18 1994 11:54
ANALYSIS # 6 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 012-0160H 5.5-6

| COMPOUND NAME | PEAK | R.T. | AREA | PPS |
|---------------|------|------|------|-----|
| UNKNOWN | 2 | 31.2 | 12.0 | US |

PHOTOVAC



STOP 8 430.3
SAMPLE LIBRARY 1 JUL 18 1994 12:17
ANALYSIS # 7 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 012-0160H 3.5-10

| COMPOUND NAME | PEAK | R.T. | AREA | PPS |
|---------------|------|------|------|-----|
| UNKNOWN | 2 | 31.2 | 3.8 | US |

PHOTOVAC

START 1 2

8 9
6 5

STOP 2 452.0
SAMPLE LIBRARY 1 JUL 18 1994 12:06
ANALYSIS # 8 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 017-0158H 1-1.5

COMPOUND NAME PEAK R.T. REFERENCE
UNKNOWN 2 92.2 3.6 00

PHOTOVAC

START 1 2

8 9

STOP 2 452.0
SAMPLE LIBRARY 1 JUL 18 1994 12:46
ANALYSIS # 9 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 017-0158H 5.5-6

COMPOUND NAME PEAK R.T. REFERENCE
UNKNOWN 2 92.2 3.6 00

PHOTOVAC

START 1 2

8 9

STOP 2 452.0
SAMPLE LIBRARY 1 JUL 18 1994 12:56
ANALYSIS # 10 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 PFB

COMPOUND NAME PEAK R.T. REFERENCE
UNKNOWN 2 92.2 3.6 00
BENZENE 1 22.6 22.50 PFB
TOLUENE 6 150.3 150.60 PFB
ETHYLBENZENE 8 202.8 212.2 PFB

PHOTOVAC

CALIBRATED PEAK 3, BENZENE

SAMPLE LIBRARY 1 JUL 18 1994 12:58
ANALYSIS # 10 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 PFB

COMPOUND NAME PEAK R.T. REFERENCE
UNKNOWN 2 92.2 3.6 00
BENZENE 1 22.6 22.50 PFB
TOLUENE 6 150.3 150.60 PFB
ETHYLBENZENE 8 202.8 212.2 PFB

PHOTOVAC

START 1 2

8 9

SAMPLE LIBRARY 1 JUL 18 1994 13:20
ANALYSIS # 12 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 AIR

COMPOUND NAME PEAK R.T. REFERENCE
UNKNOWN 2 92.2 3.6 00

PHOTOVAC

START 1 2

8 9

STOP 2 452.0
SAMPLE LIBRARY 1 JUL 18 1994 13:28
ANALYSIS # 13 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 017-0158H 5.5-6

COMPOUND NAME PEAK R.T. REFERENCE
UNKNOWN 2 92.2 3.6 00
UNKNOWN 1 150.3 150.60

PHOTOVAC

START 2 3

8 9

STOP 2 452.0
SAMPLE LIBRARY 1 JUL 18 1994 14:40
ANALYSIS # 14 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 017-0158H 3-3.5

COMPOUND NAME PEAK R.T. REFERENCE
UNKNOWN 2 92.2 3.6 00

PHOTOVAC

START 1 2

8 9

STOP 2 452.0
SAMPLE LIBRARY 1 JUL 18 1994 13:3
ANALYSIS # 11 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 PFB

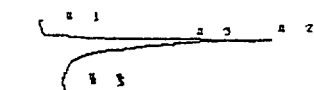
COMPOUND NAME PEAK R.T. REFERENCE
UNKNOWN 2 92.2 3.6 00
UNKNOWN 2 72.6 72.50
UNKNOWN 6 150.3 150.60
UNKNOWN 2 202.8 212.2
UNKNOWN 8 222.8 212.2

PHOTOVAC

1 COMPOUND 10 = R.T. LIMIT

BENZENE 1 22.6 100.0 PFB
TOLUENE 2 150.3 100.0 PFB
ETHYLBENZENE 3 200.8 100.0 PFB
PP-XYLENE 4 223.0 100.0 PFB

PHOTOVAC

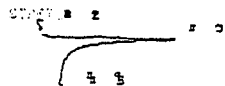


STOP # 432.0
 SAMPLE LIBRARY 1 JUL 18 1994 19:52
 ANALYSIS # 15 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG
 GAIN 10 012-0138M 5.5-6

COMPOUND NAME PEAK R.T. AREA/PPM

UNKNOWN 1 1.5 1.0 1.0

PHOTOVAC

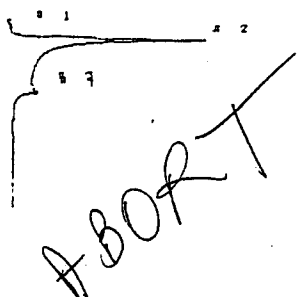


STOP # 432.0
 SAMPLE LIBRARY 1 JUL 18 1994 15:21
 ANALYSIS # 16 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG
 GAIN 10 012-0138M 2-2.5

COMPOUND NAME PEAK R.T. AREA/PPM

UNKNOWN 1 1.5 1.0 1.0

PHOTOVAC



SAMPLE LIBRARY 1 JUL 18 1994 15:03
 ANALYSIS # 16 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG
 GAIN 10 012-0138M 3.5-10

COMPOUND NAME PEAK R.T. AREA/PPM

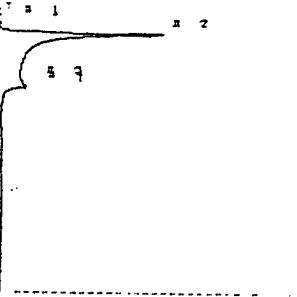
UNKNOWN 1 1.5 1.0 1.0

STOP # 432.0
 SAMPLE LIBRARY 1 JUL 18 1994 15:05
 ANALYSIS # 17 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG
 GAIN 10 012-0138M 3.5-10

COMPOUND NAME PEAK R.T. AREA/PPM

UNKNOWN 1 1.5 1.0 1.0

PHOTOVAC

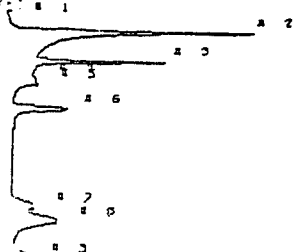


STOP # 432.0
 SAMPLE LIBRARY 1 JUL 18 1994 15:44
 ANALYSIS # 18 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG
 GAIN 10 012-0138M 3.5-10

COMPOUND NAME PEAK R.T. AREA/PPM

UNKNOWN 1 1.5 1.0 1.0

PHOTOVAC



SAMPLE LIBRARY 1 JUL 18 1994 15:53
 ANALYSIS # 19 J BYRD, JR.
 INTERNAL TEMP 34 DULUTH ANG
 GAIN 10 100 PPM

COMPOUND NAME PEAK R.T. AREA/PPM

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

UNKNOWN 1 1.5 1.0 1.0

PHOTOVAC

JUL 13 1994 7:20

FIELD: 30
POWER: 42

| SAMPLE | 8.0 | 10.0 |
|---------|-----|-------|
| CAL | 0.0 | 0.0 |
| EVENT 3 | 0.0 | 100.0 |
| EVENT 4 | 0.0 | 0.0 |
| EVENT 5 | 0.0 | 0.0 |
| EVENT 6 | 0.0 | 0.0 |
| EVENT 7 | 0.0 | 0.0 |
| EVENT 8 | 0.0 | 0.0 |

PHOTOVAC

SAMPLE LIBRARY 1 JUL 13 1994 9:28
ANALYSIS # 2 J BYRD, JR.
INTERNAL TEMP 32 DULUTH ANG
GAIN 10 100 PPS

PHOTOVAC

JUL 13 1994 7:23

FIELD: 30
POWER: 43

| SAMPLE | 8.0 | 10.0 |
|---------|-----|-------|
| CAL | 0.0 | 0.0 |
| EVENT 3 | 0.0 | 100.0 |
| EVENT 4 | 0.0 | 0.0 |
| EVENT 5 | 0.0 | 0.0 |
| EVENT 6 | 0.0 | 0.0 |
| EVENT 7 | 0.0 | 0.0 |
| EVENT 8 | 0.0 | 0.0 |

PHOTOVAC

SAMPLE LIBRARY 1 JUL 13 1994 9:30
ANALYSIS # 3 J BYRD, JR.
INTERNAL TEMP 33 DULUTH ANG
GAIN 10 100 PPS

| COMPOUND NAME | PEAK | R.T. | AREA |
|---------------|------|-------|-------|
| BENZENE | 1 | 70.6 | 100.0 |
| TOLUENE | 2 | 156.3 | 100.0 |
| E-BENZENE | 3 | 202.1 | 100.0 |
| PF-XYLENE | 4 | 223.6 | 100.0 |

PHOTOVAC

| 1 | COMPOUND | 10 | R.T. | LIMIT |
|-----------|----------|-------|-------|-------|
| BENZENE | 1 | 70.6 | 100.0 | PPS |
| TOLUENE | 2 | 156.3 | 100.0 | PPS |
| E-BENZENE | 3 | 202.1 | 100.0 | PPS |
| PF-XYLENE | 4 | 223.6 | 100.0 | PPS |

PHOTOVAC

SAMPLE LIBRARY 1 JUL 13 1994 9:51
ANALYSIS # 4 J BYRD, JR.
INTERNAL TEMP 33 DULUTH ANG
GAIN 10 AIR

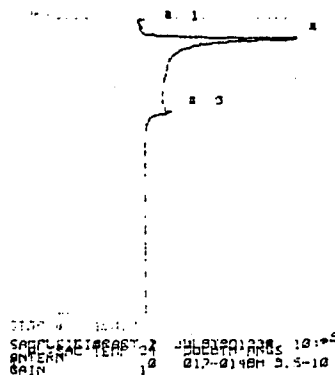
PHOTOVAC

SAMPLE LIBRARY 1 JUL 13 1994 10:3
ANALYSIS # 5 J BYRD, JR.
INTERNAL TEMP 33 DULUTH ANG
GAIN 10 017-0149H 2-2.5

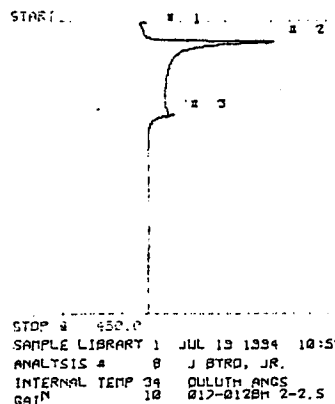
PHOTOVAC

SAMPLE LIBRARY 1 JUL 13 1994 10:19
ANALYSIS # 6 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 017-0149H 4.5-5

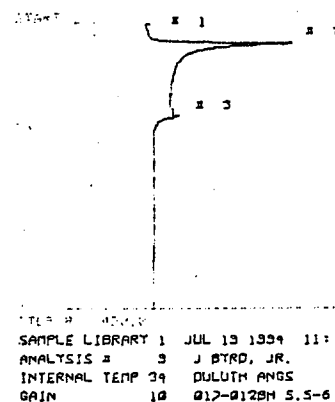
PHOTOVAC



PHOTOVAC



PHOTOVAC

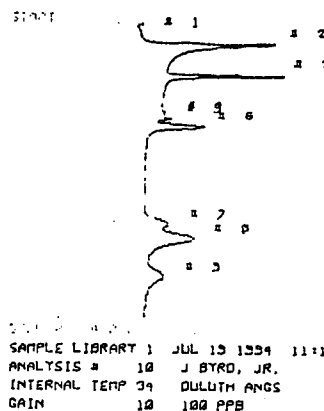


COMPOUND NAME PEAK R.T. ANALYSIS

BENZENE 1 10.5 100.0 PFB

TOLUENE 2 156.1 100.0 PFB

PHOTOVAC



COMPOUND NAME PEAK R.T. ANALYSIS

BENZENE 1 10.5 100.0 PFB

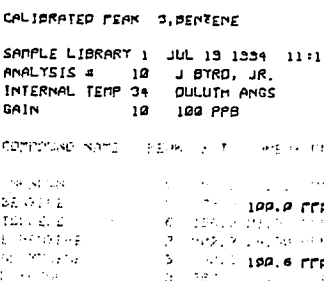
TOLUENE 2 156.1 100.0 PFB

E-BENZENE 3 202.0 100.0 PFB

PF-XYLENE 4 325.2 100.0 PFB

D-XYLENE 5 366.3 100.0 PFB

PHOTOVAC



COMPOUND NAME PEAK R.T. ANALYSIS

BENZENE 1 10.5 100.0 PFB

TOLUENE 2 156.1 100.0 PFB

E-BENZENE 3 202.0 100.0 PFB

PF-XYLENE 4 325.2 100.0 PFB

D-XYLENE 5 366.3 100.0 PFB

PHOTOVAC

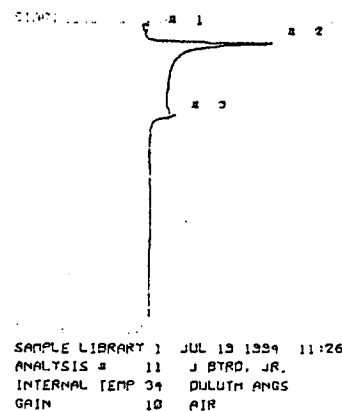
| 1 | COMPOUND | ID # | R.T. | LIMIT |
|-----------|----------|-------|-------|-------|
| BENZENE | 1 | 20.5 | 100.0 | PFB |
| TOLUENE | 2 | 156.1 | 100.0 | PFB |
| E-BENZENE | 3 | 202.0 | 100.0 | PFB |
| PF-XYLENE | 4 | 325.2 | 100.0 | PFB |
| D-XYLENE | 5 | 366.3 | 100.0 | PFB |

COMPOUND NAME PEAK R.T. ANALYSIS

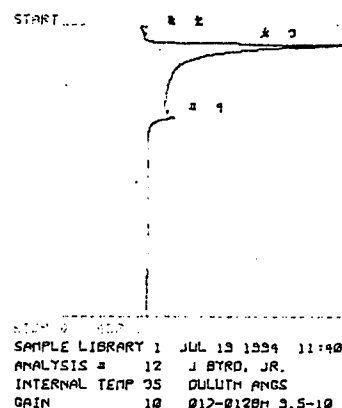
BENZENE 1 10.5 100.0 PFB

TOLUENE 2 156.1 100.0 PFB

PHOTOVAC



PHOTOVAC

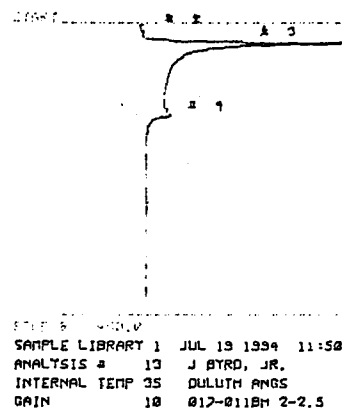


COMPOUND NAME PEAK R.T. ANALYSIS

BENZENE 1 10.5 100.0 PFB

TOLUENE 2 156.1 100.0 PFB

PHOTOVAC



COMPOUND NAME PEAK R.T. ANALYSIS

BENZENE 1 10.5 100.0 PFB

TOLUENE 2 156.1 100.0 PFB

PHOTOVAC

SAMPLE LIBRARY 1 JUL 13 1994 12:1
ANALYSIS # 14 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 012-0110m 5.5-6

PHOTOVAC

SAMPLE LIBRARY 1 JUL 13 1994 12:10
ANALYSIS # 15 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 012-0110m 3.5-10

PHOTOVAC

SAMPLE LIBRARY 1 JUL 13 1994 12:51
ANALYSIS # 16 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 FFB

COMPOUND NAME PEAK R.T. AREA
BENZENE 1 78.0 100.0 FFB
TOLUENE 2 152.3 100.0 FFB
E-BENZENE 3 311.0 100.0 FFB
M-XYLENE 4 333.0 100.0 FFB

PHOTOVAC

CALIBRATED PEAK 3, DENEZENE

SAMPLE LIBRARY 1 JUL 13 1994 12:53
ANALYSIS # 16 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 FFB

100.0 FFB
150.1 FFB

PHOTOVAC

SAMPLE LIBRARY 1 JUL 13 1994 13:4
ANALYSIS # 17 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 FFB

COMPOUND NAME PEAK R.T. AREA
BENZENE 1 78.0 100.0 FFB
TOLUENE 2 152.3 100.0 FFB
E-BENZENE 3 311.0 100.0 FFB
M-XYLENE 4 333.0 100.0 FFB

PHOTOVAC

1 COMPOUND 10 # R.T. LIMIT
BENZENE 1 78.0 100.0 FFB
TOLUENE 2 152.3 100.0 FFB
E-BENZENE 3 311.0 100.0 FFB
M-XYLENE 4 333.0 100.0 FFB

PHOTOVAC

SAMPLE LIBRARY 1 JUL 13 1994 13:18
ANALYSIS # 18 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 10 AIR

PHOTOVAC

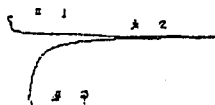
SAMPLE LIBRARY 1 JUL 13 1994 13:53
ANALYSIS # 19 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 10 012-0100m 4.5-5

PHOTOVAC

SAMPLE LIBRARY 1 JUL 13 1994 14:53
ANALYSIS # 20 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG
GAIN 10 012-0100m 3.5-10

COMPOUND NAME PEAK R.T. AREA
BENZENE 1 78.0 100.0 FFB
TOLUENE 2 152.3 100.0 FFB
E-BENZENE 3 311.0 100.0 FFB
M-XYLENE 4 333.0 100.0 FFB

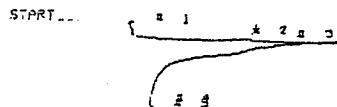
PHOTOVAC



SAMPLE LIBRARY 1 JUL 13 1994 15:3
ANALYSIS # 21 J BYRD, JR.
INTERNAL TEMP 32 DULUTH ANG
GAIN 10 017-0128H 1.5-2

UNKNOWN 2 31.2 4.3 US
UNKNOWN 2 35.0 2.0 US

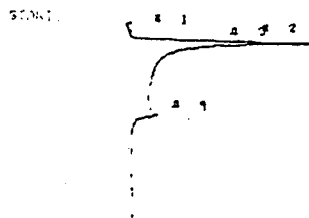
PHOTOVAC



SAMPLE LIBRARY 1 JUL 13 1994 15:18
ANALYSIS # 22 J BYRD, JR.
INTERNAL TEMP 32 DULUTH ANG
GAIN 10 017-0128H 5.5-6

UNKNOWN 2 31.2 4.3 US
UNKNOWN 2 35.0 2.0 US

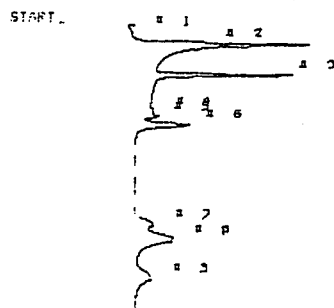
PHOTOVAC



SAMPLE LIBRARY 1 JUL 13 1994 15:40
ANALYSIS # 23 J BYRD, JR.
INTERNAL TEMP 32 DULUTH ANG
GAIN 10 017-0128H 5.5-10

UNKNOWN 2 31.2 4.3 US
UNKNOWN 2 35.0 2.0 US

PHOTOVAC



SAMPLE LIBRARY 1 JUL 13 1994 15:54
ANALYSIS # 24 J BYRD, JR.
INTERNAL TEMP 32 DULUTH ANG
GAIN 10 100 PFB

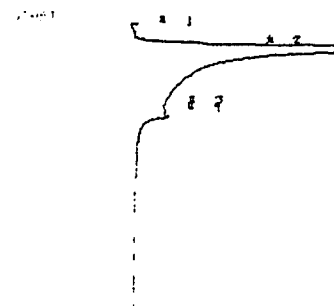
| COMPONENT NAME | PEAK | RT | AREA |
|----------------|------|-------|-----------|
| UNKNOWN | 1 | 31.2 | 4.3 US |
| BENZENE | 2 | 35.0 | 2.0 US |
| UNKNOWN | 3 | 127.2 | 172.2 PFB |
| UNKNOWN | 4 | 127.2 | 172.2 PFB |

PHOTOVAC

CALIBRATED PEAK 0.BENZENE
SAMPLE LIBRARY 1 JUL 13 1994 15:58
ANALYSIS # 24 J BYRD, JR.
INTERNAL TEMP 32 DULUTH ANG
GAIN 10 100 PFB

| COMPONENT NAME | PEAK | RT | AREA |
|----------------|------|-------|-----------|
| UNKNOWN | 1 | 31.2 | 4.3 US |
| BENZENE | 2 | 35.0 | 2.0 US |
| UNKNOWN | 3 | 127.2 | 172.2 PFB |
| UNKNOWN | 4 | 127.2 | 172.2 PFB |

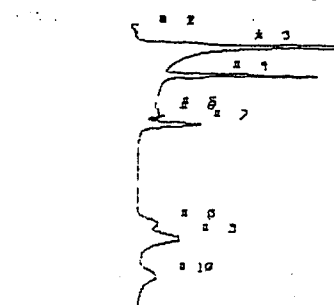
PHOTOVAC



SAMPLE LIBRARY 1 JUL 13 1994 16:3
ANALYSIS # 25 J BYRD, JR.
INTERNAL TEMP 32 DULUTH ANG
GAIN 10 AIR

UNKNOWN 2 31.2 4.3 US
UNKNOWN 2 35.0 2.0 US

PHOTOVAC



SAMPLE LIBRARY 1 JUL 13 1994 16:18
ANALYSIS # 26 J BYRD, JR.
INTERNAL TEMP 32 DULUTH ANG
GAIN 10 100 PFB

| COMPONENT NAME | PEAK | RT | AREA |
|----------------|------|-------|-----------|
| UNKNOWN | 1 | 31.2 | 4.3 US |
| BENZENE | 2 | 35.0 | 2.0 US |
| UNKNOWN | 3 | 127.2 | 172.2 PFB |
| UNKNOWN | 4 | 127.2 | 172.2 PFB |

PHOTOVAC

CALIBRATED PEAK 1.BENZENE
SAMPLE LIBRARY 1 JUL 13 1994 16:13
ANALYSIS # 26 J BYRD, JR.
INTERNAL TEMP 32 DULUTH ANG
GAIN 10 100 PFB

| COMPONENT NAME | PEAK | RT | AREA |
|----------------|------|-------|-----------|
| UNKNOWN | 1 | 31.2 | 4.3 US |
| BENZENE | 2 | 35.0 | 2.0 US |
| UNKNOWN | 3 | 127.2 | 172.2 PFB |
| UNKNOWN | 4 | 127.2 | 172.2 PFB |

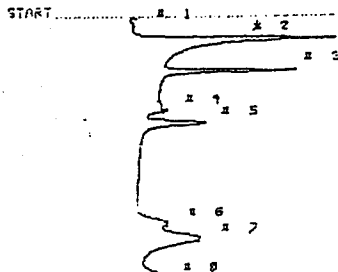
PHOTOVAC

JUL 20 1994 10:33

FIELD: 30
POWER: 43

| SAMPLE | 0.0 | 10.0 |
|---------|-----|-------|
| CAL | 0.0 | 0.0 |
| EVENT 3 | 0.0 | 100.0 |
| EVENT 4 | 0.0 | 0.0 |
| EVENT 5 | 0.0 | 0.0 |
| EVENT 6 | 0.0 | 0.0 |
| EVENT 7 | 0.0 | 0.0 |
| EVENT 8 | 0.0 | 0.0 |

PHOTOVAC



STOP # 450.0

SAMPLE LIBRARY 1 JUL 20 1994 11:5
ANALYSIS # 1 J BYRD, JR.
INTERNAL TEMP 23 DULUTH ANG
GAIN 10 PFB

COMPOUND NAME PEAK S.T. AREA

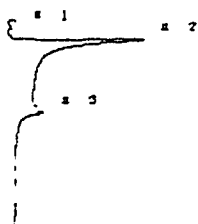
| COMPOUND | PEAK | S.T. | AREA |
|----------|------|-------|-------|
| UNKNOWN | 1 | 22.1 | 3.2 |
| UNKNOWN | 2 | 163.3 | 100.0 |
| UNKNOWN | 3 | 320.3 | 100.0 |
| UNKNOWN | 4 | 343.1 | 100.0 |

PHOTOVAC

1 COMPOUND ID # R.T. LIMIT

| COMPOUND | PEAK | S.T. | AREA |
|-----------|------|-------|-------|
| BENZENE | 1 | 22.1 | 3.2 |
| TOLUENE | 2 | 163.3 | 100.0 |
| E-BENZENE | 3 | 320.3 | 100.0 |
| PF-XYLENE | 4 | 343.1 | 100.0 |

PHOTOVAC

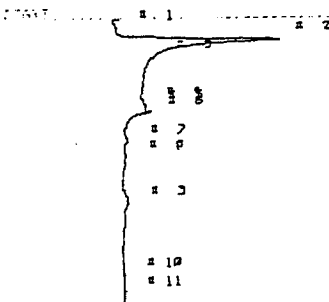


SAMPLE LIBRARY 1 JUL 20 1994 11:21
ANALYSIS # 2 J BYRD, JR.
INTERNAL TEMP 31 DULUTH ANG
GAIN 10 AIR

COMPOUND NAME PEAK S.T. AREA

| COMPOUND | PEAK | S.T. | AREA |
|----------|------|-------|-------|
| UNKNOWN | 1 | 22.1 | 3.2 |
| UNKNOWN | 2 | 163.3 | 100.0 |
| UNKNOWN | 3 | 320.3 | 100.0 |

PHOTOVAC



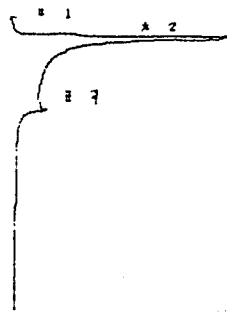
STOP # 450.0

SAMPLE LIBRARY 1 JUL 20 1994 11:40
ANALYSIS # 3 J BYRD, JR.
INTERNAL TEMP 32 DULUTH ANG
GAIN 10 017-018BH 2-2.5

COMPOUND NAME PEAK S.T. AREA

| COMPOUND | PEAK | S.T. | AREA |
|----------|------|-------|-------|
| UNKNOWN | 1 | 22.1 | 3.2 |
| UNKNOWN | 2 | 163.3 | 100.0 |
| UNKNOWN | 3 | 320.3 | 100.0 |
| UNKNOWN | 4 | 343.1 | 100.0 |

PHOTOVAC

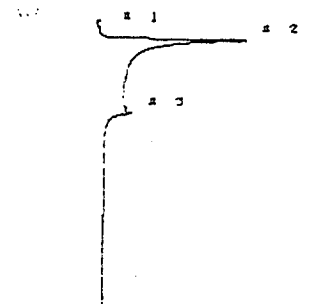


SAMPLE LIBRARY 1 JUL 20 1994 11:57
ANALYSIS # 4 J BYRD, JR.
INTERNAL TEMP 33 DULUTH ANG
GAIN 10 017-018BH 2-2.5

COMPOUND NAME PEAK S.T. AREA

| COMPOUND | PEAK | S.T. | AREA |
|----------|------|-------|-------|
| UNKNOWN | 1 | 22.1 | 3.2 |
| UNKNOWN | 2 | 163.3 | 100.0 |
| UNKNOWN | 3 | 320.3 | 100.0 |

PHOTOVAC

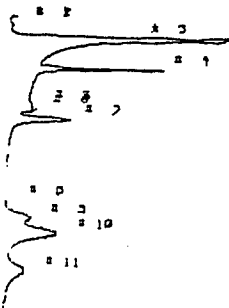


STOP # 450.0
SAMPLE LIBRARY 1 JUL 20 1994 12:25
ANALYSIS # 5 J BYRD, JR.
INTERNAL TEMP 33 DULUTH ANG
GAIN 10 017-018BH 3.5-10

COMPOUND NAME PEAK S.T. AREA

| COMPOUND | PEAK | S.T. | AREA |
|----------|------|-------|-------|
| UNKNOWN | 1 | 22.1 | 3.2 |
| UNKNOWN | 2 | 163.3 | 100.0 |
| UNKNOWN | 3 | 320.3 | 100.0 |

PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 12:15
ANALYSIS # 7 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 PPS

151.0 PPS

PHOTOVAC

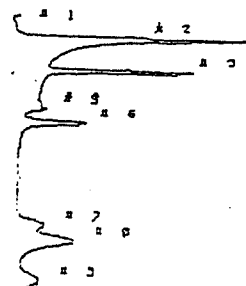
CALIBRATED PEAK 1-PENTENE

SAMPLE LIBRARY 1 JUL 20 1994 12:16
ANALYSIS # 7 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 PPS

100.0 PPS

163.4 PPS

PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 13:13
ANALYSIS # 8 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 PPS

113.1 PPS
165.1 PPS
325.1 PPS
349.8 PPS

PHOTOVAC

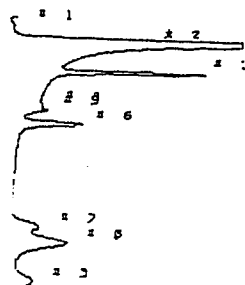
CALIBRATED PEAK 3-BENZENE

SAMPLE LIBRARY 1 JUL 20 1994 13:14
ANALYSIS # 8 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 PPS

100.0 PPS

165.3 PPS

PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 13:15
ANALYSIS # 8 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 PPS

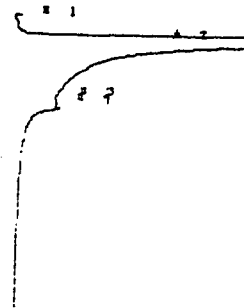
113.1 PPS
165.1 PPS
325.1 PPS
349.8 PPS

PHOTOVAC

1 COMPOUND 10 A R.T. LIMIT

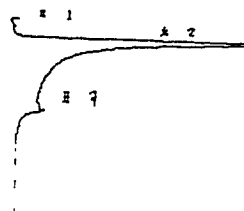
BENZENE 1 83.2 100.0 PPS
TOLUENE 2 165.1 100.0 PPS
P-BENZENE 3 325.1 100.0 PPS
PP-XYLENE 1 349.8 100.0 PPS

PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 13:26
ANALYSIS # 10 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 AIR

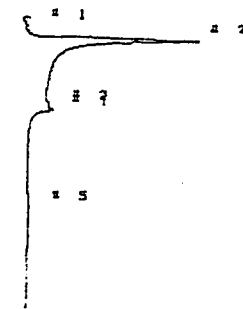
PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 13:45
ANALYSIS # 11 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 10 012-0135H 1.5-2

113.1 PPS
165.1 PPS
325.1 PPS
349.8 PPS

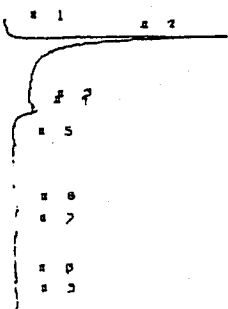
PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 14:23
ANALYSIS # 12 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 10 012-0135H 5.0-6

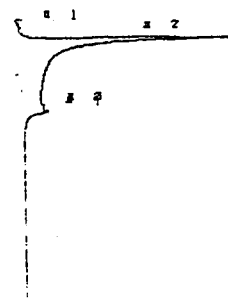
113.1 PPS
165.1 PPS
325.1 PPS
349.8 PPS

PHOTOVAC



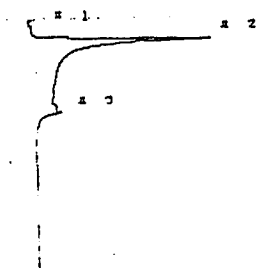
SAMPLE LIBRARY 1 JUL 20 1994 14:03
ANALYSIS # 13 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG5
GAIN 10 017-0198H 3.5-10

PHOTOVAC



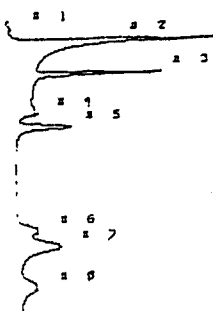
SAMPLE LIBRARY 1 JUL 20 1994 14:56
ANALYSIS # 14 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG5
GAIN 10 017-0208H 2-2.5

PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 15:20
ANALYSIS # 15 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG5
GAIN 10 017-0208H 3.5-6

PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 15:00
ANALYSIS # 16 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG5
GAIN 10 100 PPB

150.1 PPB

PHOTOVAC

CALIBRATED PEAK 3,PENTENE

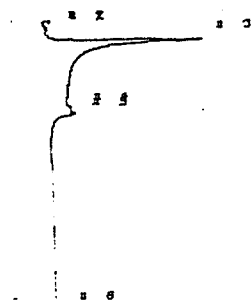
SAMPLE LIBRARY 1 JUL 20 1994 15:02
ANALYSIS # 16 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG5
GAIN 10 100 PPB

100.0 PPB

101.1 PPB

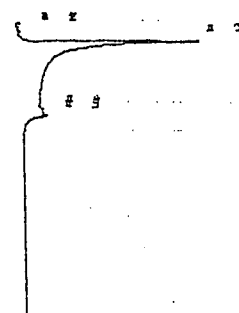
123.3 PPB

PHOTOVAC



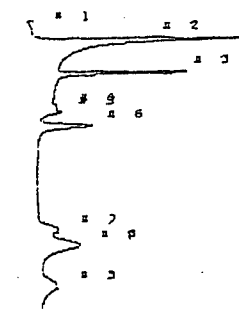
SAMPLE LIBRARY 1 JUL 20 1994 15:42
ANALYSIS # 17 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG5
GAIN 10 AIR

PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 15:52
ANALYSIS # 18 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG5
GAIN 10 017-0208H 3.5-10

PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1994 16: 2
ANALYSIS # 19 J BYRD, JR.
INTERNAL TEMP 37 DULUTH ANG5
GAIN 10 100 PPB

100.0 PPB

101.1 PPB

102.2 PPB

121.3 PPB

PHOTOVAC

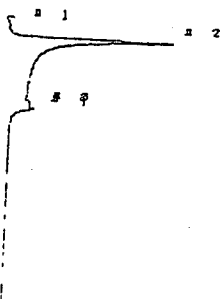
CALIBRATED PEAK 3-PENTENE

SAMPLE LIBRARY 1 JUL 20 1954 16: 5
 ANALYSIS # 15 J BYRD, JR.
 INTERNAL TEMP 37 DULUTH ANG
 GAIN 10 100 PPS

100.0 PPS

169.6 PPS

PHOTOVAC



SAMPLE LIBRARY 1 JUL 20 1954 16:19
 ANALYSIS # 20 J BYRD, JR.
 INTERNAL TEMP 37 DULUTH ANG
 GAIN 10 AIR

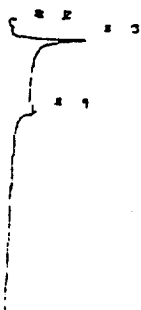
PHOTOVAC

JUL 23 1994 10:23

FIELD: 30
POWER: 43

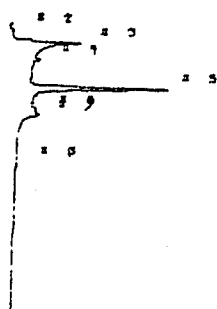
| SAMPLE | 0.0 | 10.0 |
|---------|-----|-------|
| CAL | 0.0 | 0.0 |
| EVENT 3 | 0.0 | 100.0 |
| EVENT 4 | 0.0 | 0.0 |
| EVENT 5 | 0.0 | 0.0 |
| EVENT 6 | 0.0 | 0.0 |
| EVENT 7 | 0.0 | 0.0 |
| EVENT 8 | 0.0 | 0.0 |

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 11:13
ANALYSIS # 2 J BYRD, JR.
INTERNAL TEMP 32 DULUTH ANG
GAIN 10 021-0018 AIR

PHOTOVAC

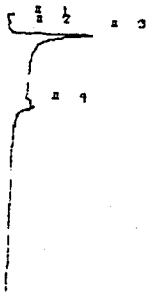


SAMPLE LIBRARY 1 JUL 23 1994 11:42
ANALYSIS # 5 J BYRD, JR.
INTERNAL TEMP 33 DULUTH ANG
GAIN 10 021-019 DU

PHOTOVAC

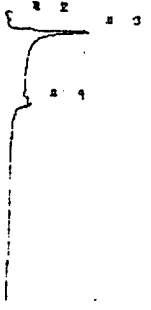
1 COMPOUND ID # R.T. LIMIT

PHOTOVAC



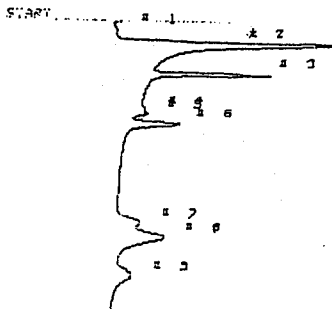
SAMPLE LIBRARY 1 JUL 23 1994 11:23
ANALYSIS # 3 J BYRD, JR.
INTERNAL TEMP 33 DULUTH ANG
GAIN 10 021-003 DU

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 11:52
ANALYSIS # 6 J BYRD, JR.
INTERNAL TEMP 33 DULUTH ANG
GAIN 10 021-026 DU

PHOTOVAC

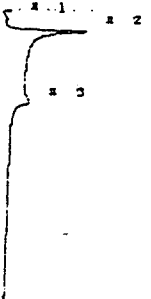


SAMPLE LIBRARY 1 JUL 23 1994 11:1
ANALYSIS # 1 J BYRD, JR.
INTERNAL TEMP 31 DULUTH ANG
GAIN 10 100 PFB

COMPOUND NAME PEAK R.T. OPERATOR

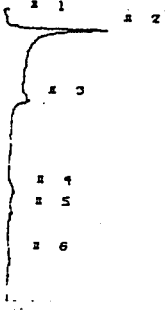
| COMPOUND NAME | PEAK R.T. | OPERATOR |
|---------------|-----------|-------------|
| BENZENE | 10.0 | J BYRD, JR. |
| TOLUENE | 153.5 | J BYRD, JR. |
| E-BENZENE | 312.5 | J BYRD, JR. |
| PF-XYLENE | 335.0 | J BYRD, JR. |

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 11:32
ANALYSIS # 4 J BYRD, JR.
INTERNAL TEMP 33 DULUTH ANG
GAIN 10 021-010 DU

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 12:2
ANALYSIS # 7 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 018-0060H 2.5

PHOTOVAC

1 COMPOUND ID # R.T. LIMIT

| COMPOUND NAME | PEAK R.T. | OPERATOR |
|---------------|-----------|-------------|
| BENZENE | 10.0 | J BYRD, JR. |
| TOLUENE | 153.5 | J BYRD, JR. |
| E-BENZENE | 312.5 | J BYRD, JR. |
| PF-XYLENE | 335.0 | J BYRD, JR. |

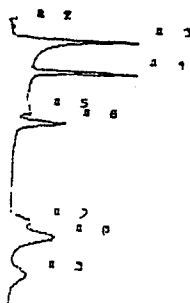
PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 12:13
ANALYSIS # 8 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 100 PPS

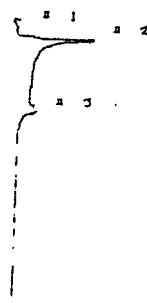
100.0 PPS

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 12:26
ANALYSIS # 3 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 100 PPS

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 12:42
ANALYSIS # 11 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 018-0000 1.2

PHOTOVAC

1 COMPOUND ID # R.T. LIMIT

| | | | | |
|-----------|---|-------|-------|-----|
| BENZENE | 1 | 90.6 | 100.0 | PPS |
| TOLUENE | 2 | 153.7 | 100.0 | PPS |
| E-BENZENE | 3 | 317.1 | 100.0 | PPS |
| MP-XYLENE | 4 | 335.6 | 100.0 | PPS |
| O-XYLENE | 5 | 335.3 | 100.0 | PPS |

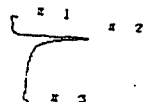
PHOTOVAC

CALIBRATED PEAK 2, BENZENE

SAMPLE LIBRARY 1 JUL 23 1994 12:14
ANALYSIS # 8 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 100 PPS

100.0 PPS

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 12:32
ANALYSIS # 10 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 AIR

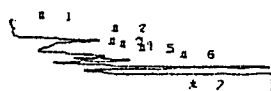
PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 12:57
ANALYSIS # 12 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 017-0100 1.5-2.5

INTERNAL TEMP 34 DULUTH ANG
GAIN 10 017-0100 1.5-2.5

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 13:06
ANALYSIS # 13 J BYRD, JR.
INTERNAL TEMP 34 DULUTH ANG
GAIN 10 018-0078H 2.5

PHOTOVAC

1 COMPOUND ID # R.T. LIMIT

| | | | | |
|-----------|---|-------|-------|-----|
| BENZENE | 1 | 89.6 | 100.0 | PPB |
| TOLUENE | 2 | 153.7 | 100.0 | PPB |
| E-BENZENE | 3 | 310.1 | 100.0 | PPB |
| MP-XYLENE | 4 | 335.6 | 100.0 | PPB |
| O-XYLENE | 5 | 335.3 | 100.0 | PPB |

PHOTOVAC

1 COMPOUND ID # R.T. LIMIT

PHOTOVAC



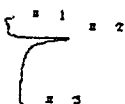
SAMPLE LIBRARY 1 JUL 23 1994 15:37
ANALYSIS # 14 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 100 PPS

PHOTOVAC

1 COMPOUND ID # R.T. LIMIT

| | | | | |
|-----------|---|-------|-------|-----|
| BENZENE | 1 | 81.6 | 100.0 | PPB |
| TOLUENE | 2 | 161.7 | 100.0 | PPB |
| E-BENZENE | 3 | 312.3 | 100.0 | PPB |
| MP-XYLENE | 4 | 341.0 | 100.0 | PPB |
| O-XYLENE | 5 | 401.7 | 100.0 | PPB |

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 15:50
ANALYSIS # 15 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 AIR

PHOTOVAC



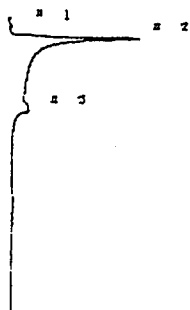
SAMPLE LIBRARY 1 JUL 23 1994 16:00
ANALYSIS # 16 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 10 021-0045D

PHOTOVAC



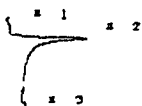
SAMPLE LIBRARY 1 JUL 23 1994 16:11
ANALYSIS # 17 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 10 021-0045D

PHOTOVAC



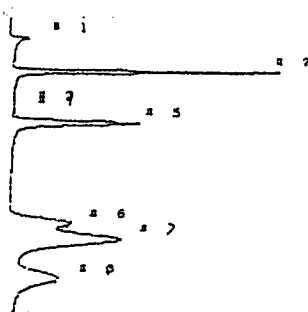
SAMPLE LIBRARY 1 JUL 23 1994 16:21
ANALYSIS # 18 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 021-0065D

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 16:31
ANALYSIS # 13 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 021-00750

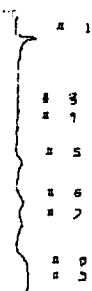
PHOTOVAC



STOP # 100.0
SAMPLE LIBRARY 1 JUL 23 1994 17: 5
ANALYSIS # 22 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 2 1 PPM

COMPOUND NAME PEAK P.T. AREA
BENZENE 1 81.2 1.000 PPM
TOLUENE 2 161.2 1.000 PPM
E-BENZENE 3 312.0 1.000 PPM
NP-XYLENE 4 319.1 1.000 PPM

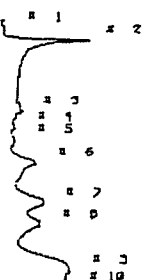
PHOTOVAC



STOP # 100.0
SAMPLE LIBRARY 1 JUL 23 1994 17:27
ANALYSIS # 24 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 2 018-0078H 8-1.3

COMPOUND NAME PEAK P.T. AREA
BENZENE 1 81.2 1.000 PPM
TOLUENE 2 161.2 1.000 PPM
E-BENZENE 3 312.0 1.000 PPM
NP-XYLENE 4 319.1 1.000 PPM

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 16:41
ANALYSIS # 20 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 10 018-0078H 8-1.3

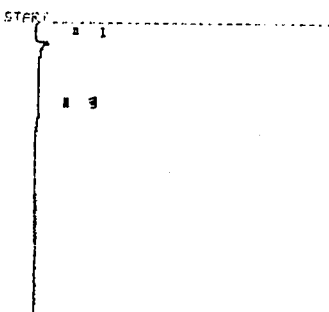
COMPOUND NAME PEAK P.T. AREA
BENZENE 1 81.2 1.000 PPM
TOLUENE 2 161.2 1.000 PPM
E-BENZENE 3 312.0 1.000 PPM
NP-XYLENE 4 319.1 1.000 PPM
BENZENE 5 312.0 1.000 PPM
TOLUENE 6 319.1 1.000 PPM
E-BENZENE 7 312.0 1.000 PPM
NP-XYLENE 8 319.1 1.000 PPM
BENZENE 9 312.0 1.000 PPM
TOLUENE 10 319.1 1.000 PPM
E-BENZENE 11 312.0 1.000 PPM
NP-XYLENE 12 319.1 1.000 PPM

PHOTOVAC

1 COMPOUND ID # P.T. LIMIT

BENZENE 1 81.2 1.000 PPM
TOLUENE 2 161.2 1.000 PPM
E-BENZENE 3 312.0 1.000 PPM
NP-XYLENE 4 319.1 1.000 PPM

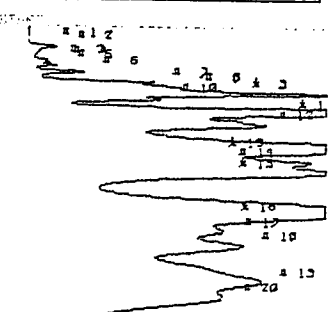
PHOTOVAC



STOP # 100.0
SAMPLE LIBRARY 1 JUL 23 1994 17:17
ANALYSIS # 23 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 2 AIR

COMPOUND NAME PEAK P.T. AREA
BENZENE 1 81.2 1.000 PPM
TOLUENE 2 161.2 1.000 PPM
E-BENZENE 3 312.0 1.000 PPM
NP-XYLENE 4 319.1 1.000 PPM

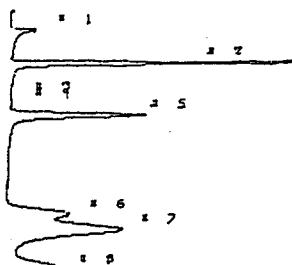
PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 17:37
ANALYSIS # 25 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 2 018-0078H 2.5

COMPOUND NAME PEAK P.T. AREA
BENZENE 1 81.2 1.000 PPM
TOLUENE 2 161.2 1.000 PPM
E-BENZENE 3 312.0 1.000 PPM
NP-XYLENE 4 319.1 1.000 PPM
BENZENE 5 312.0 1.000 PPM
TOLUENE 6 319.1 1.000 PPM
E-BENZENE 7 312.0 1.000 PPM
NP-XYLENE 8 319.1 1.000 PPM
BENZENE 9 312.0 1.000 PPM
TOLUENE 10 319.1 1.000 PPM
E-BENZENE 11 312.0 1.000 PPM
NP-XYLENE 12 319.1 1.000 PPM

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 17:50
ANALYSIS # 26 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 2 1 PPM BTEX

COMPOUND NAME PEAK # RESPONSE
BENZENE 1 1.023 PPM
TOLUENE 2 1.028 PPM
XYLENE 3 1.026 PPM
METHYLENE 4 2.053 PPM

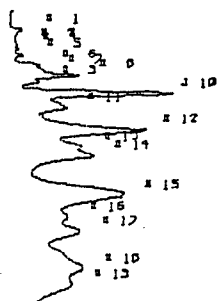
PHOTOVAC

CALIBRATED PEAK 2, BENTENE

SAMPLE LIBRARY 1 JUL 23 1994 17:52
ANALYSIS # 26 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 2 1 PPM BTEX

COMPOUND NAME PEAK # RESPONSE
BENZENE 1 1.000 PPM
TOLUENE 2 1.000 PPM
XYLENE 3 1.000 PPM
METHYLENE 4 1.000 PPM

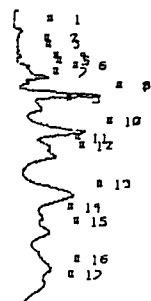
PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 18:14
ANALYSIS # 27 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 2 018-0028H 2.5

COMPOUND NAME PEAK # RESPONSE
BENZENE 1 1.022 PPM
TOLUENE 2 1.028 PPM
XYLENE 3 1.026 PPM
METHYLENE 4 2.053 PPM

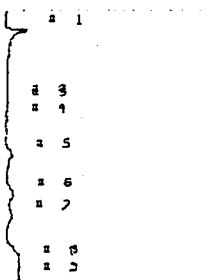
PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 18:30
ANALYSIS # 28 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 2 018-0028H 2.5

COMPOUND NAME PEAK # RESPONSE
BENZENE 1 1.022 PPM
TOLUENE 2 1.028 PPM
XYLENE 3 1.026 PPM
METHYLENE 4 2.053 PPM

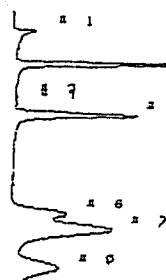
PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 18:18
ANALYSIS # 28 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 2 018-0028H 0.8-1.3

COMPOUND NAME PEAK # RESPONSE
BENZENE 1 1.000 PPM
TOLUENE 2 1.000 PPM
XYLENE 3 1.000 PPM
METHYLENE 4 1.000 PPM

PHOTOVAC

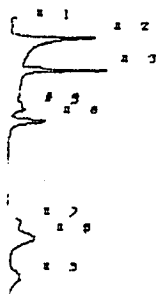


SAMPLE LIBRARY 1 JUL 23 1994 18:40
ANALYSIS # 30 J BYRD, JR.
INTERNAL TEMP 35 DULUTH ANG
GAIN 2 1 PPM

COMPOUND NAME PEAK # RESPONSE
BENZENE 1 1.000 PPM
TOLUENE 2 1.000 PPM
XYLENE 3 1.000 PPM
METHYLENE 4 1.000 PPM

186. 3 סף
187. 6 סף
188. 8 סף

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 13:54
ANALYSIS # 36 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 10 100 PPS

170.7 PPS

PHOTOVAC

CALIBRATED PEAK 3, BENZENE

SAMPLE LIBRARY 1 JUL 23 1994 13:56
ANALYSIS # 36 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 10 100 PPS

100.0 PPS

107.0 PPS

PHOTOVAC



SAMPLE LIBRARY 1 JUL 23 1994 20:7
ANALYSIS # 37 J BYRD, JR.
INTERNAL TEMP 36 DULUTH ANG
GAIN 10 AIR

0 2 4 6 8 10
(x 10 MV)

TIME PRINTED: MAY 16,95 15:38
SAMPLE TIME: MAY 16,95 15:30

METHOD

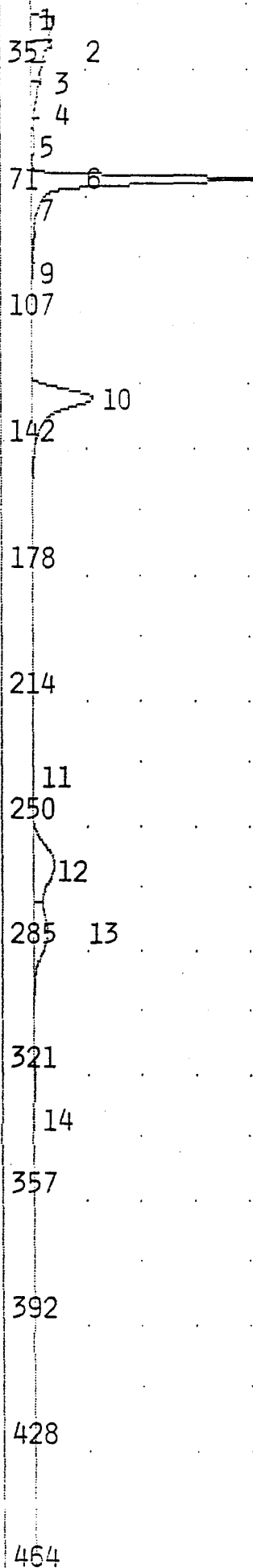
SLOPE UP 0.500 MV/SEC
SLOPE DOWN 1.500 MV/SEC
MIN AREA 0.000 MVSEC
MIN HEIGHT 0.000 MV
ANALYSIS DELAY 0.0 SEC
WINDOW PERCENT 10.0 %
DET FLOW 12 ML/MIN
B/F FLOW 12 ML/MIN
AUX FLOW 0 ML/MIN
OVEN TEMP 40 C
AMB TEMP 32 C
MAX GAIN 1000
ANALYSIS TIME 500.0 SEC

PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.050 MVS | 16.6 |
| 2 | UNKNOWN | 8.773 MVS | 18.7 |
| 3 | UNKNOWN | 32.01 MVS | 20.3 |
| 4 | UNKNOWN | 22.56 MVS | 26.8 |
| 5 | UNKNOWN | 12.13 MVS | 32.0 |
| 6 | UNKNOWN | 25.04 MVS | 36.3 |
| 7 | UNKNOWN | 9.629 MVS | 51.0 |
| 8 | UNKNOWN | 201.0 MVS | 64.2 |
| 9 | UNKNOWN | 0.299 MVS | 80.0 |
| 10 | UNKNOWN | 130.8 MVS | 126.1 |
| 11 | UNKNOWN | 0.086 MVS | 230.2 |
| 12 | UNKNOWN | 79.92 MVS | 258.4 |
| 13 | UNKNOWN | 58.90 MVS | 277.8 |
| 14 | UNKNOWN | 9.116 MVS | 324.5 |

NOTES

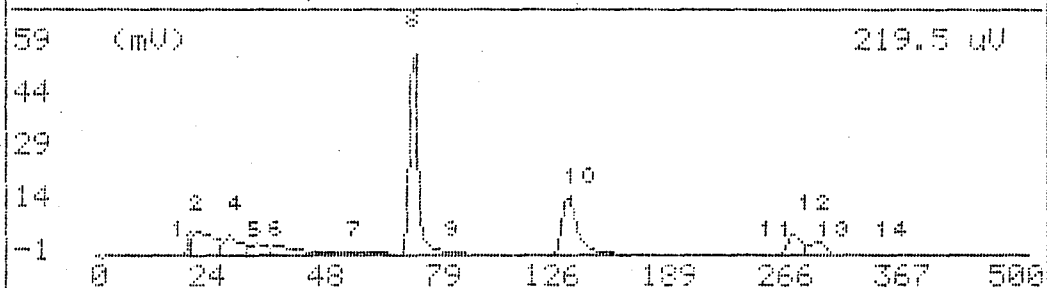
JOE BYRD, JR.
DULUTH ANGB
100 PPB BTEX

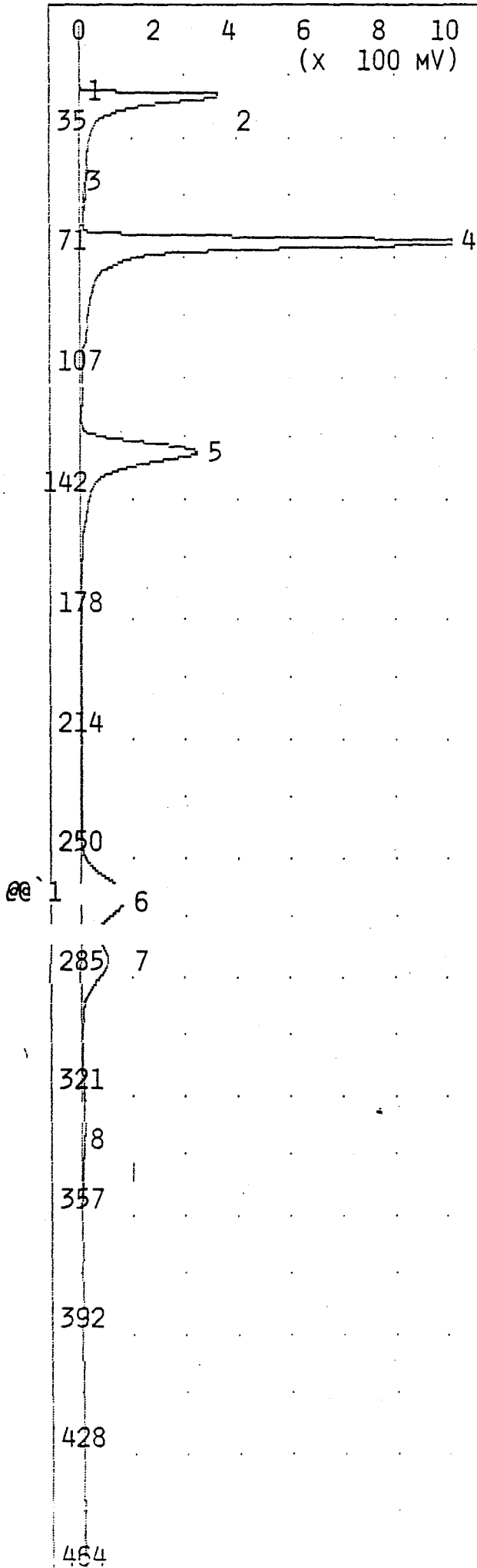


G.C. Ready 109+ GC Function May 16, 95 15:46
 -- Analysis No 20 -- Run at - May 16, 95 15:50 -
 Pk No Name Conc/Area Alarm Ret. Time

| | | | | |
|----|--------------|-----------|------|-----------|
| 6 | Unknown | 25.04 mUS | -No- | 36.3 sec |
| 7 | Unknown | 9.629 mUS | -No- | 51.0 sec |
| 8 | benzene | 100.0 ppb | -No- | 64.2 sec |
| 9 | Unknown | 0.299 mUS | -No- | 80.0 sec |
| 10 | toluene | 100.0 ppb | -No- | 126.1 sec |
| 11 | Unknown | 0.086 mUS | -No- | 230.2 sec |
| 12 | ethylbenzene | 100.0 ppb | -No- | 258.4 sec |
| 13 | m,p-xylene | 200.0 ppb | -No- | 277.8 sec |
| 14 | o-xylene | 100.0 ppb | -No- | 324.5 sec |

- Detected 14 peaks. Use + + to scroll [505 sec]





TIME PRINTED: MAY 16,95 15:56

SAMPLE TIME: MAY 16,95 15:48

METHOD

| | | |
|----------------|-------|--------|
| SLOPE UP | 0.500 | MV/SEC |
| SLOPE DOWN | 1.500 | MV/SEC |
| MIN AREA | 0.000 | MVSEC |
| MIN HEIGHT | 0.000 | MV |
| ANALYSIS DELAY | 0.0 | SEC |
| WINDOW PERCENT | 10.0 | % |
| DET FLOW | 12 | ML/MIN |
| B/F FLOW | 12 | ML/MIN |
| AUX FLOW | 0 | ML/MIN |
| OVEN TEMP | 40 | C |
| AMB TEMP | 32 | C |
| MAX GAIN | 1000 | |
| ANALYSIS TIME | 500.0 | SEC |

PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|------------|-------|
| 1 | UNKNOWN | 0.060 MVS | 16.6 |
| 2 | UNKNOWN | 2.379 VSEC | 20.4 |
| 3 | UNKNOWN | 30.14 MVS | 43.2 |
| 4 | BENZENE | 2.803 PPM | 64.6 |
| 5 | TOLUENE | 2.327 PPM | 126.5 |
| 6 | ETHYLBENZENE | 2.108 PPM | 259.4 |
| 7 | M,P-XYLENE | 3.727 PPM | 278.4 |
| 8 | O-XYLENE | 3.723 PPM | 325.8 |

NOTES

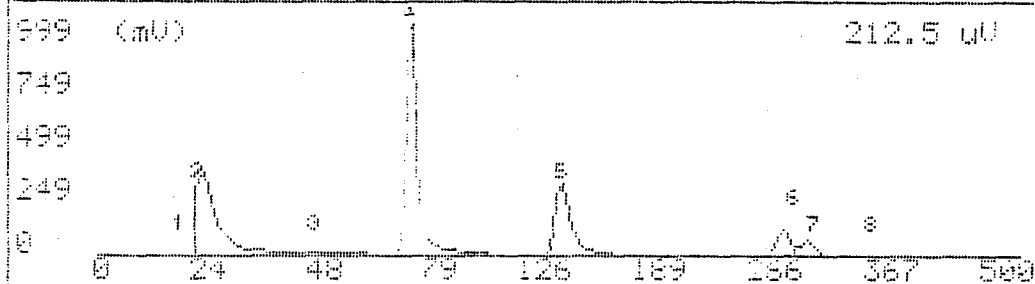
JOE BYRD, JR.
DULUTH ANGB
1 PPM BTEX

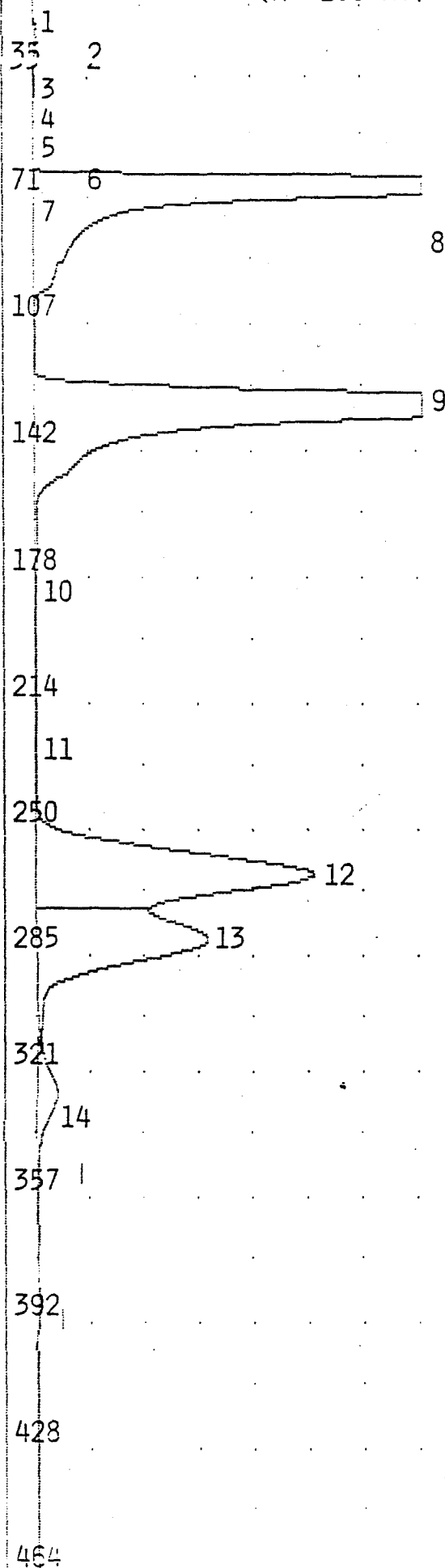
G.C. Ready 186+ GC Function Ma, 16.95 16:01
 -- Analysis No 21 -- Run at - May 11, 95 15:48 -
 Pk No Name Conc Area Alarm Ret. Time

| | | | | | | |
|---|--------------|-------|------|---|-------|-----|
| 1 | Unknown | 0.250 | 0US | - | 16.6 | sec |
| 2 | Unknown | 2.379 | 0Sec | - | 23.4 | sec |
| 3 | Unknown | 30.14 | mUS | - | 43.2 | sec |
| 4 | benzene | 1.220 | ppm | - | 64.5 | sec |
| 5 | toluene | 1.220 | ppm | - | 126.5 | sec |
| 6 | ethylbenzene | 1.220 | ppm | - | 250.4 | sec |
| 7 | m,p-xylene | 2.000 | ppm | - | 325.4 | sec |
| 8 | o-xylene | 1.006 | ppm | - | 325.8 | sec |

- Detected 8 peaks.

[385 sec]



0 2 4 6 8 10
(X 100 MV)

TIME PRINTED: MAY 16,95 16:11

SAMPLE TIME: MAY 16,95 16:02

METHOD

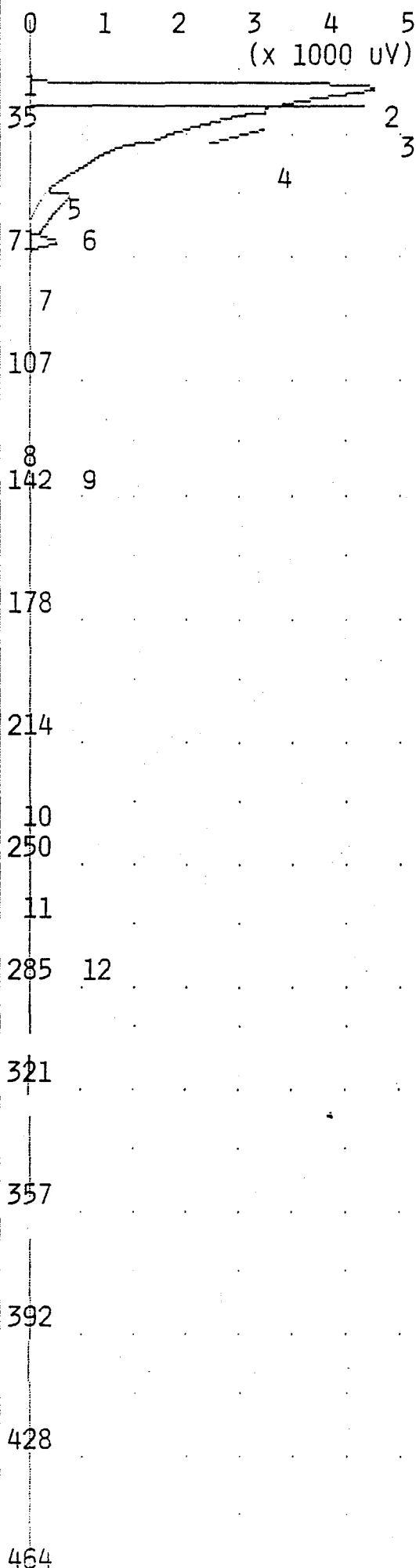
| | | |
|----------------|-------|--------|
| SLOPE UP | 0.500 | MV/SEC |
| SLOPE DOWN | 1.500 | MV/SEC |
| MIN AREA | 0.000 | MVSEC |
| MIN HEIGHT | 0.000 | MV |
| ANALYSIS DELAY | 0.0 | SEC |
| WINDOW PERCENT | 10.0 | % |
| DET FLOW | 12 | ML/MIN |
| B/F FLOW | 12 | ML/MIN |
| AUX FLOW | 0 | ML/MIN |
| OVEN TEMP | 40 | C |
| AMB TEMP | 32 | C |
| MAX GAIN | 1000 | |
| ANALYSIS TIME | 500.0 | SEC |

PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.060 MVS | 16.7 |
| 2 | UNKNOWN | 7.290 MVS | 18.9 |
| 3 | UNKNOWN | 53.09 MVS | 20.6 |
| 4 | UNKNOWN | 36.55 MVS | 27.0 |
| 5 | UNKNOWN | 20.70 MVS | 31.9 |
| 6 | UNKNOWN | 38.02 MVS | 36.4 |
| 7 | UNKNOWN | 11.98 MVS | 50.9 |
| 8 | BENZENE | 3.009 PPM | 65.2 |
| 9 | TOLUENE | 6.233 PPM | 127.7 |
| 10 | UNKNOWN | 18.33 MVS | 179.2 |
| 11 | UNKNOWN | 2.078 MVS | 223.2 |
| 12 | ETHYLBENZENE | 5.917 PPM | 260.2 |
| 13 | M,P-XYLENE | 11.75 PPM | 278.4 |
| 14 | O-XYLENE | 3.681 PPM | 325.3 |

NOTES

JOE BYRD, JR.
DULUTH ANGB
10 PPM BTEX



TIME PRINTED: MAY 16, 95 16:26

SAMPLE TIME: MAY 16, 95 16:17

METHOD

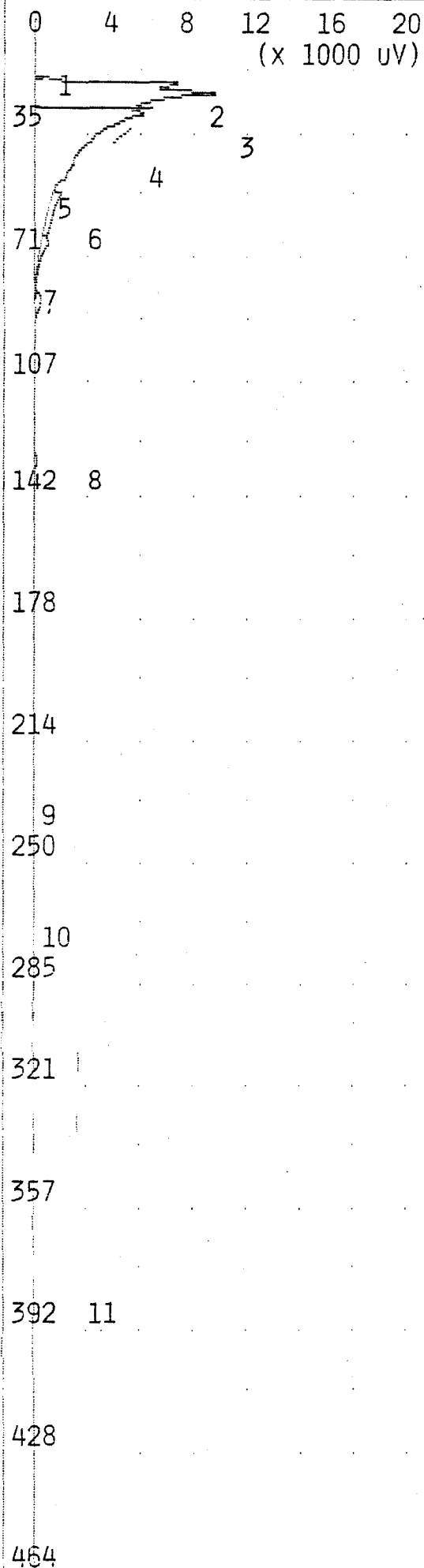
| | | |
|----------------|-------|--------|
| SLOPE UP | 0.500 | MV/SEC |
| SLOPE DOWN | 1.500 | MV/SEC |
| MIN AREA | 0.000 | MVSEC |
| MIN HEIGHT | 0.000 | MV |
| ANALYSIS DELAY | 0.0 | SEC |
| WINDOW PERCENT | 10.0 | % |
| DET FLOW | 12 | ML/MIN |
| B/F FLOW | 12 | ML/MIN |
| AUX FLOW | 0 | ML/MIN |
| OVEN TEMP | 40 | C |
| AMB TEMP | 32 | C |
| MAX GAIN | 1000 | |
| ANALYSIS TIME | 500.0 | SEC |

PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.040 MVS | 16.5 |
| 2 | UNKNOWN | 6.238 MVS | 19.1 |
| 3 | UNKNOWN | 85.06 MVS | 20.5 |
| 4 | UNKNOWN | 0.599 MVS | 26.9 |
| 5 | UNKNOWN | 3.556 MVS | 51.5 |
| 6 | BENZENE | 1.098 PPB | 64.5 |
| 7 | UNKNOWN | 1.293 MVS | 80.6 |
| 8 | TOLUENE | 0.887 PPB | 126.9 |
| 9 | UNKNOWN | 0.162 MVS | 129.3 |
| 10 | UNKNOWN | 0.658 MVS | 229.8 |
| 11 | ETHYLBENZENE | 6.002 PPB | 261.0 |
| 12 | M,P-XYLENE | 8.717 PPB | 278.4 |

NOTES

JOE BYRD, JR.
DULUTH ANGB
AIR BLANK



TIME PRINTED: MAY 16,95 17:03

SAMPLE TIME: MAY 16,95 16:55

METHOD

| | | |
|----------------|-------|--------|
| SLOPE UP | 0.500 | MV/SEC |
| SLOPE DOWN | 1.500 | MV/SEC |
| MIN AREA | 0.000 | MVSEC |
| MIN HEIGHT | 0.000 | MV |
| ANALYSIS DELAY | 0.0 | SEC |
| WINDOW PERCENT | 10.0 | % |
| DET FLOW | 12 | ML/MIN |
| B/F FLOW | 12 | ML/MIN |
| AUX FLOW | 0 | ML/MIN |
| OVEN TEMP | 40 | C |
| AMB TEMP | 31 | C |
| MAX GAIN | 1000 | |
| ANALYSIS TIME | 500.0 | SEC |

PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 1.085 MVS | 17.5 |
| 2 | UNKNOWN | 12.87 MVS | 19.0 |
| 3 | UNKNOWN | 137.5 MVS | 21.7 |
| 4 | UNKNOWN | 2.157 MVS | 27.5 |
| 5 | UNKNOWN | 3.787 MVS | 51.1 |
| 6 | BENZENE | 0.759 PPB | 64.9 |
| 7 | UNKNOWN | 1.469 MVS | 81.4 |
| 8 | TOLUENE | 2.673 PPB | 128.0 |
| 9 | UNKNOWN | 1.304 MVS | 233.2 |
| 10 | ETHYLBENZENE | 0.135 PPB | 264.2 |
| 11 | UNKNOWN | 0.546 MVS | 385.6 |

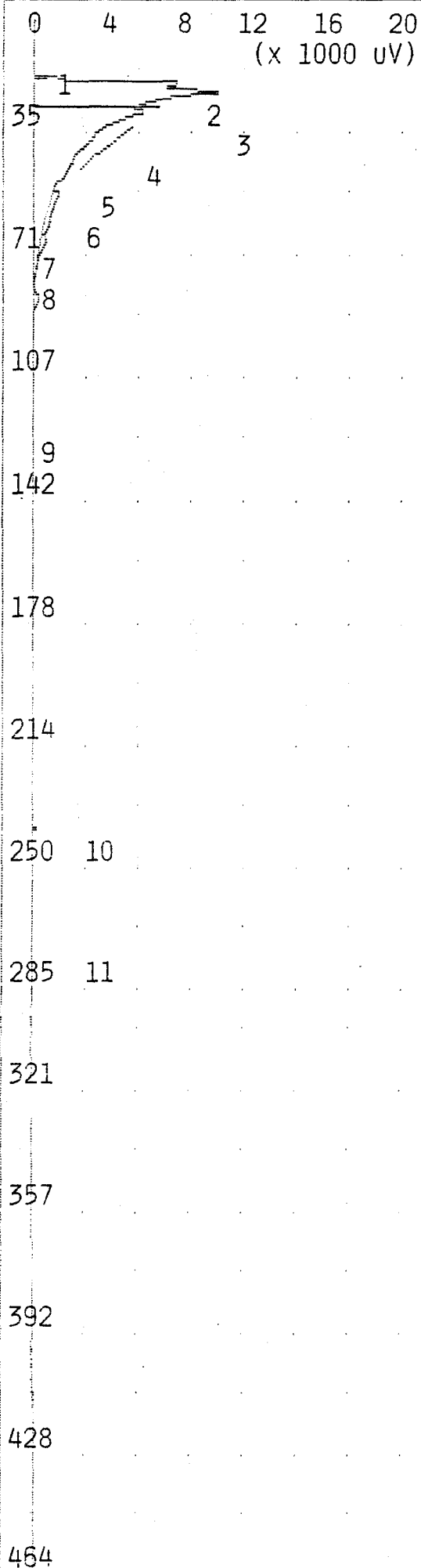
NOTES

JOE BYRD, JR.

DULUTH ANGB

021-026BH

8.0-10.0 10G



TIME PRINTED: MAY 16,95 17:15

SAMPLE TIME: MAY 16,95 17:07

METHOD

| | | |
|----------------|-------|--------|
| SLOPE UP | 0.500 | MV/SEC |
| SLOPE DOWN | 1.500 | MV/SEC |
| MIN AREA | 0.000 | MVSEC |
| MIN HEIGHT | 0.000 | MV |
| ANALYSIS DELAY | 0.0 | SEC |
| WINDOW PERCENT | 10.0 | % |
| DET FLOW | 12 | ML/MIN |
| B/F FLOW | 12 | ML/MIN |
| AUX FLOW | 0 | ML/MIN |
| OVEN TEMP | 40 | C |
| AMB TEMP | 31 | C |
| MAX GAIN | 1000 | |
| ANALYSIS TIME | 500.0 | SEC |

PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 1.713 MVS | 17.5 |
| 2 | UNKNOWN | 13.31 MVS | 19.0 |
| 3 | UNKNOWN | 141.2 MVS | 21.7 |
| 4 | UNKNOWN | 2.372 MVS | 27.4 |
| 5 | UNKNOWN | 0.272 MVS | 34.9 |
| 6 | UNKNOWN | 3.521 MVS | 50.9 |
| 7 | BENZENE | 0.566 PPB | 65.3 |
| 8 | UNKNOWN | 1.230 MVS | 81.0 |
| 9 | TOLUENE | 1.706 PPB | 127.8 |
| 10 | ETHYLBENZENE | 3.612 PPB | 236.2 |
| 11 | M,P-XYLENE | 5.176 PPB | 279.4 |

NOTES

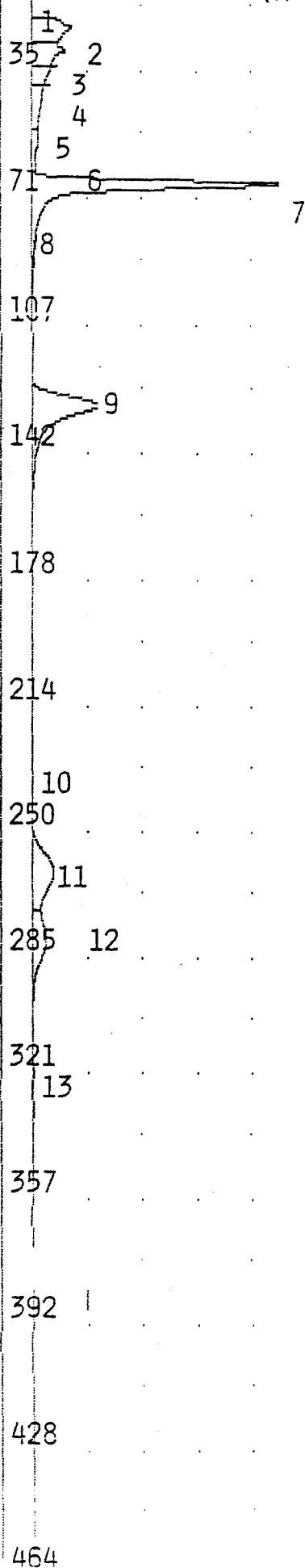
JOE BYRD, JR.

DULUTH ANGB

021-026BH

4.0- 6.0 10G

0 2 4 6 8 10
(x 10 MV)



TIME PRINTED: MAY 16,95 17:39

SAMPLE TIME: MAY 16,95 17:31

METHOD

SLOPE UP 0.500 MV/SEC
SLOPE DOWN 1.500 MV/SEC
MIN AREA 0.000 MVSEC
MIN HEIGHT 0.000 MV
ANALYSIS DELAY 0.0 SEC
WINDOW PERCENT 10.0 %
DET FLOW 12 ML/MIN
B/F FLOW 12 ML/MIN
AUX FLOW 0 ML/MIN
OVEN TEMP 40 C
AMB TEMP 31 C
MAX GAIN 1000
ANALYSIS TIME 500.0 SEC

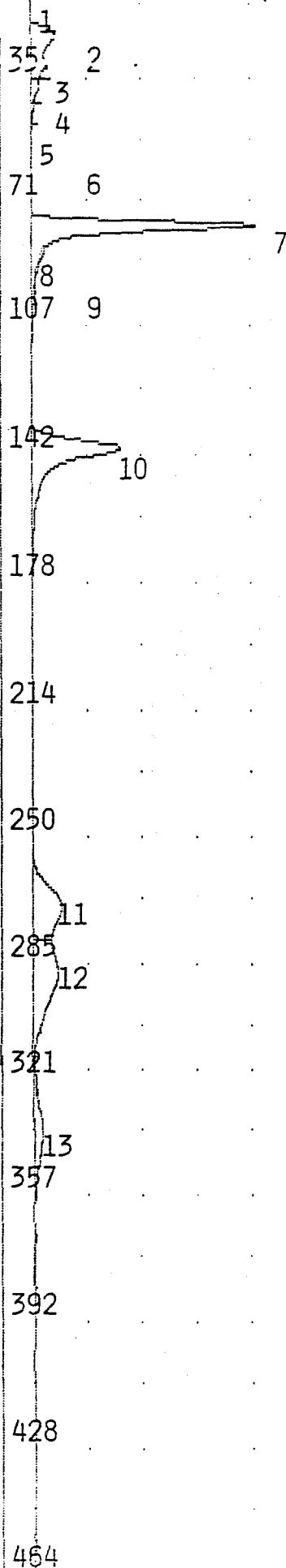
PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.059 MVS | 16.9 |
| 2 | UNKNOWN | 10.52 MVS | 19.2 |
| 3 | UNKNOWN | 52.81 MVS | 21.0 |
| 4 | UNKNOWN | 37.52 MVS | 27.6 |
| 5 | UNKNOWN | 57.25 MVS | 32.6 |
| 6 | UNKNOWN | 19.65 MVS | 51.1 |
| 7 | BENZENE | 106.2 PPB | 65.2 |
| 8 | UNKNOWN | 0.651 MVS | 80.6 |
| 9 | TOLUENE | 103.2 PPB | 127.0 |
| 10 | UNKNOWN | 1.272 MVS | 231.2 |
| 11 | ETHYLBENZENE | 98.22 PPB | 259.2 |
| 12 | M,P-XYLENE | 188.0 PPB | 278.1 |
| 13 | O-XYLENE | 68.30 PPB | 324.2 |

NOTES

JOE BYRD, JR.
DULUTH ANGB
100 PPB BTEX

0 2 4 6 8 10
(X 10 MV)



TIME PRINTED: MAY 17,95 08:06

SAMPLE TIME: MAY 17,95 07:57

METHOD

SLOPE UP 0.500 MV/SEC
SLOPE DOWN 1.500 MV/SEC
MIN AREA 0.000 MVSEC
MIN HEIGHT 0.000 MV
ANALYSIS DELAY 0.0 SEC
WINDOW PERCENT 10.0 %
DET FLOW 12 ML/MIN
B/F FLOW 12 ML/MIN
AUX FLOW 0 ML/MIN
OVEN TEMP 40 C
AMB TEMP 29 C
MAX GAIN 1000
ANALYSIS TIME 500.0 SEC

PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.097 MVS | 18.6 |
| 2 | UNKNOWN | 8.173 MVS | 20.9 |
| 3 | UNKNOWN | 35.18 MVS | 22.6 |
| 4 | UNKNOWN | 19.48 MVS | 29.8 |
| 5 | UNKNOWN | 18.64 MVS | 35.6 |
| 6 | UNKNOWN | 0.398 MVS | 54.6 |
| 7 | UNKNOWN | 277.1 MVS | 76.5 |
| 8 | UNKNOWN | 2.155 MVS | 84.0 |
| 9 | UNKNOWN | 0.483 MVS | 93.4 |
| 10 | UNKNOWN | 182.4 MVS | 138.5 |
| 11 | UNKNOWN | 107.3 MVS | 267.2 |
| 12 | UNKNOWN | 130.4 MVS | 285.6 |
| 13 | UNKNOWN | 48.03 MVS | 337.3 |

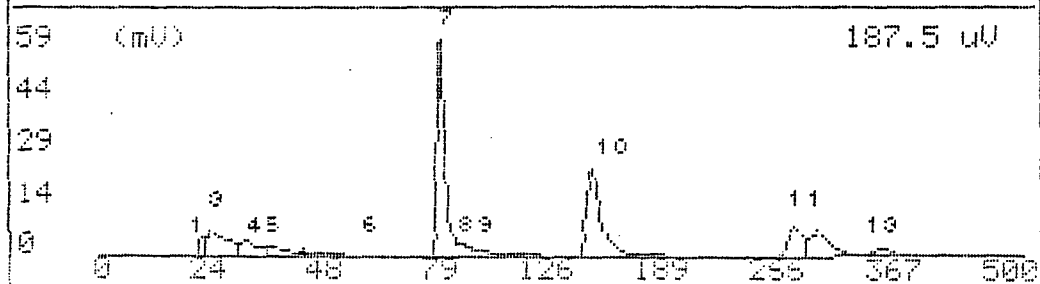
NOTES

JOE BYRD, JR.
DULUTH ANGB
100 PPB BTEX

G.C. Ready 10S+ GC Function May 17, 95 08:13
 -- Analysis No 3 -- Run at - May 17, 95 07:57 -

| Pk No | Name | Conc/Area | Alarm | Ret. Time |
|-------|--------------|-----------|-------|-----------|
| 5 | Unknown | 18.64 mUS | -No- | 35.6 sec |
| 6 | Unknown | 0.398 mUS | -No- | 54.6 sec |
| 7 | benzene | 100.0 ppb | -No- | 76.5 sec |
| 8 | Unknown | 2.155 mUS | -No- | 84.0 sec |
| 9 | Unknown | 0.483 mUS | -No- | 93.4 sec |
| 10 | toluene | 100.0 ppb | -No- | 138.5 sec |
| 11 | ethylbenzene | 100.0 ppb | -No- | 267.2 sec |
| 12 | m,p-xylene | 200.0 ppb | -No- | 285.6 sec |
| 13 | o-xylene | 100.0 ppb | -No- | 337.3 sec |

- Detected 13 peaks. Use + + to scroll [505 sec]



0 2 4 6 8 10
(x 100 MV)

TIME PRINTED: MAY 17,95 08:23

SAMPLE TIME: MAY 17,95 08:15

METHOD

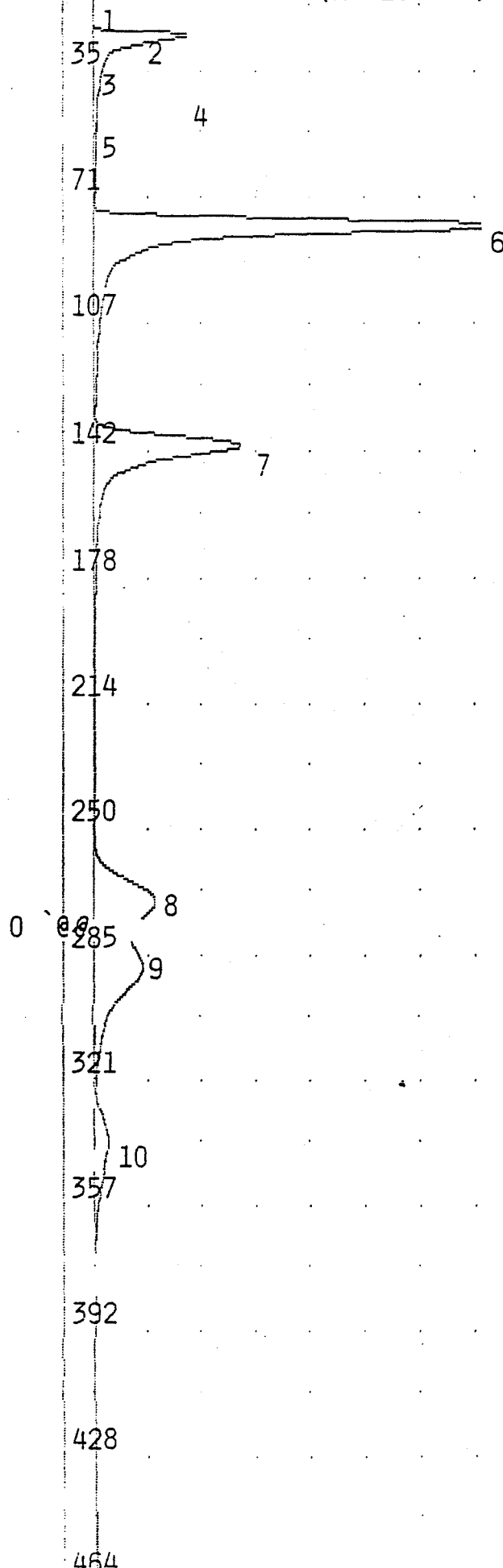
SLOPE UP 0.500 MV/SEC
SLOPE DOWN 1.500 MV/SEC
MIN AREA 0.000 MVSEC
MIN HEIGHT 0.000 MV
ANALYSIS DELAY 0.0 SEC
WINDOW PERCENT 10.0 %
DET FLOW 12 ML/MIN
B/F FLOW 12 ML/MIN
AUX FLOW 0 ML/MIN
OVEN TEMP 40 C
AMB TEMP 30 C
MAX GAIN 1000
ANALYSIS TIME 500.0 SEC

PEAK REPORT

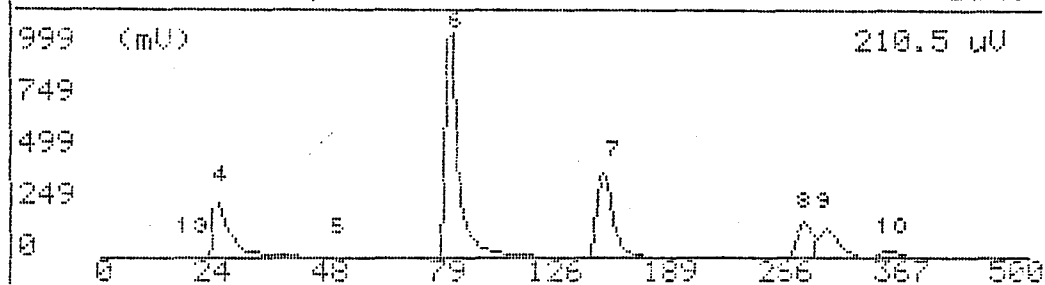
| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|------------|-------|
| 1 | UNKNOWN | 0.056 MVS | 16.0 |
| 2 | UNKNOWN | 0.084 MVS | 17.8 |
| 3 | UNKNOWN | 0.135 MVS | 18.8 |
| 4 | UNKNOWN | 1.488 VSEC | 23.0 |
| 5 | UNKNOWN | 0.596 MVS | 47.8 |
| 6 | BENZENE | 2.734 PPM | 77.2 |
| 7 | TOLUENE | 1.938 PPM | 138.9 |
| 8 | ETHYLBENZENE | 2.221 PPM | 268.2 |
| 9 | M,P-XYLENE | 3.749 PPM | 286.6 |
| 10 | O-XYLENE | 2.084 PPM | 337.3 |

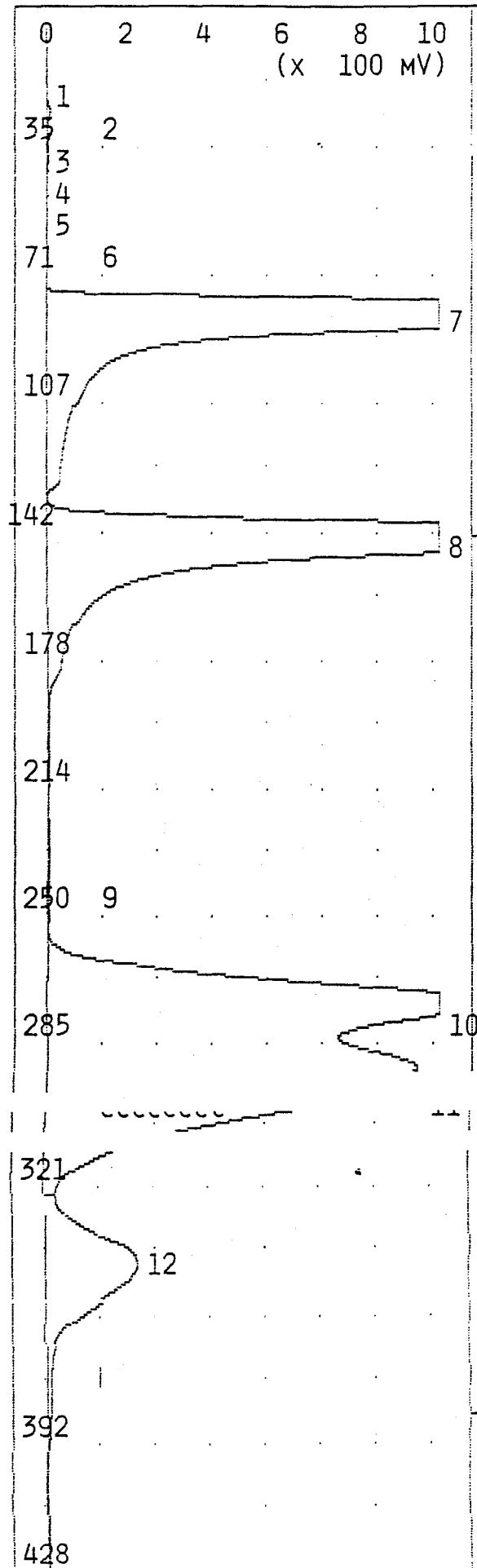
NOTES

JOE BYRD, JR.
DULUTH ANGB
1 PPM BTEX



| | | | | | |
|---|--------------|------------------|-------|------------------|--|
| G.C. Ready | | 105+ GC Function | | May 17, 95 08:28 | |
| -- Analysis No 4 | | -- Run at -- | | May 17, 95 08:15 | |
| Pk No | Name | Conc/Area | Alarm | Ret. Time | |
| 2 | Unknown | 0.004 mUS | -No- | 17.0 sec | |
| 3 | Unknown | 0.135 mUS | -No- | 18.0 sec | |
| 4 | Unknown | 1.400 mUS | -No- | 20.0 sec | |
| 5 | Unknown | 0.596 mUS | -No- | 47.0 sec | |
| 6 | benzene | 1.000 ppm | -No- | 77.0 sec | |
| 7 | toluene | 1.000 ppm | -No- | 106.0 sec | |
| 8 | ethylbenzene | 1.000 ppm | -No- | 200.0 sec | |
| 9 | m,p-xylene | 2.000 ppm | -No- | 206.0 sec | |
| 10 | o-xylene | 1.004 ppm | -No- | 307.0 sec | |
| - Detected 10 peaks. Use + + to scroll [505 sec] | | | | | |





TIME PRINTED: MAY 17,95 08:38

SAMPLE TIME: MAY 17,95 08:30

METHOD

| | | |
|----------------|-------|--------|
| SLOPE UP | 0.500 | MV/SEC |
| SLOPE DOWN | 1.500 | MV/SEC |
| MIN AREA | 0.000 | MVSEC |
| MIN HEIGHT | 0.000 | MV |
| ANALYSIS DELAY | 0.0 | SEC |
| WINDOW PERCENT | 10.0 | % |
| DET FLOW | 12 | ML/MIN |
| B/F FLOW | 12 | ML/MIN |
| AUX FLOW | 0 | ML/MIN |
| OVEN TEMP | 40 | C |
| AMB TEMP | 30 | C |
| MAX GAIN | 1000 | |
| ANALYSIS TIME | 500.0 | SEC |

PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.052 MVS | 18.8 |
| 2 | UNKNOWN | 5.132 MVS | 21.4 |
| 3 | UNKNOWN | 54.13 MVS | 23.1 |
| 4 | UNKNOWN | 34.81 MVS | 30.4 |
| 5 | UNKNOWN | 34.36 MVS | 36.0 |
| 6 | UNKNOWN | 0.103 MVS | 55.3 |
| 7 | BENZENE | 3.956 PPM | 79.8 |
| 8 | TOLUENE | 7.032 PPM | 141.3 |
| 9 | UNKNOWN | 4.330 MVS | 236.6 |
| 10 | ETHYLBENZENE | 7.386 PPM | 272.2 |
| 11 | M,P-XYLENE | 14.38 PPM | 289.8 |
| 12 | O-XYLENE | 5.601 PPM | 341.0 |

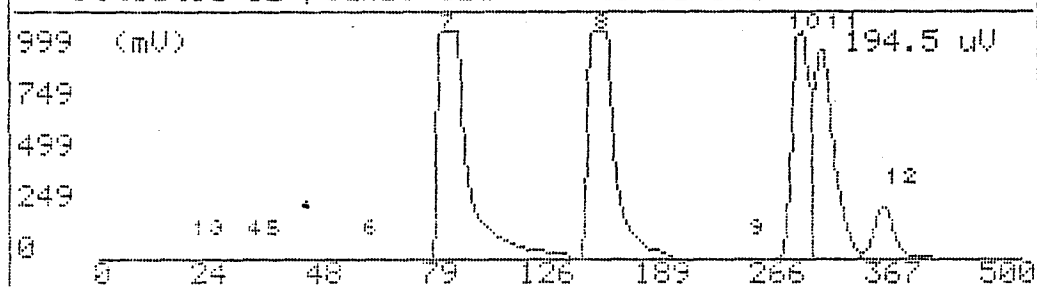
NOTES

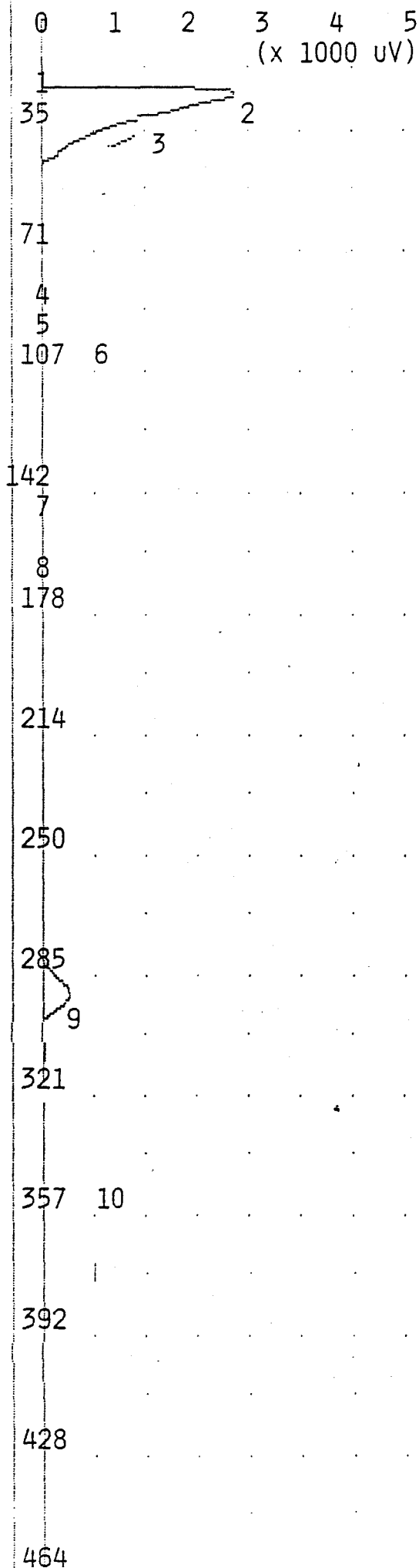
JOE BYRD, JR.
DULUTH ANGB
10 PPM BTEX

S.C. Ready 103+ GC Function May 17, 95 08:44
 -- Analysis No 5 -- Run at - May 17, 95 08:30 -

| Pk No | Name | Conc/Area | Alarm | Ret. Time |
|-------|--------------|-----------|-------|-----------|
| 4 | Unknown | 34.81 mUS | -No- | 30.4 sec |
| 5 | Unknown | 34.36 mUS | -No- | 36.0 sec |
| 6 | Unknown | 0.103 mUS | -No- | 55.3 sec |
| 7 | benzene | 10.00 ppm | -No- | 79.0 sec |
| 8 | toluene | 10.00 ppm | -No- | 141.3 sec |
| 9 | Unknown | 4.330 mUS | -No- | 236.0 sec |
| 10 | ethylbenzene | 10.00 ppm | -No- | 272.2 sec |
| 11 | m,p-xylene | 20.00 ppm | -No- | 289.0 sec |
| 12 | o-xylene | 10.02 ppm | -No- | 341.0 sec |

 - Detected 12 peaks. Use + + to scroll [505 sec]





TIME PRINTED: MAY 17,95 08:54

SAMPLE TIME: MAY 17,95 08:45

METHOD

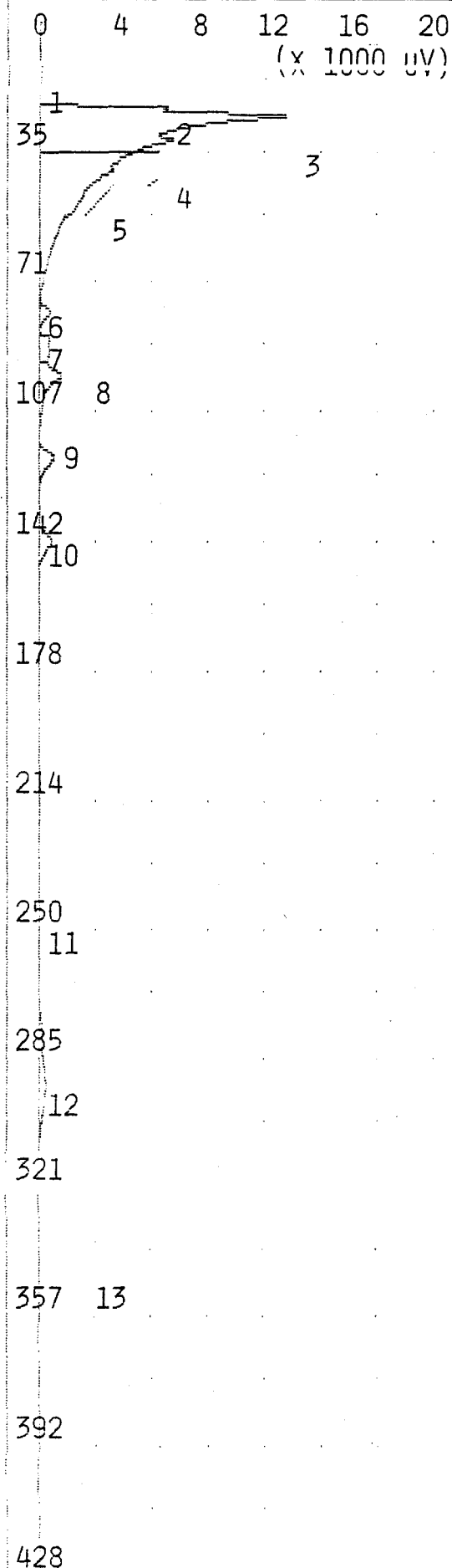
SLOPE UP 0.500 MV/SEC
SLOPE DOWN 1.500 MV/SEC
MIN AREA 0.000 MVSEC
MIN HEIGHT 0.000 MV
ANALYSIS DELAY 0.0 SEC
WINDOW PERCENT 10.0 %
DET FLOW 12 ML/MIN
B/F FLOW 12 ML/MIN
AUX FLOW 0 ML/MIN
OVEN TEMP 40 C
AMB TEMP 30 C
MAX GAIN 1000
ANALYSIS TIME 500.0 SEC

PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.067 MVS | 18.5 |
| 2 | UNKNOWN | 52.43 MVS | 22.8 |
| 3 | UNKNOWN | 0.196 MVS | 29.5 |
| 4 | BENZENE | 0.795 PPB | 76.9 |
| 5 | UNKNOWN | 5.512 MVS | 84.9 |
| 6 | UNKNOWN | 27.63 MVS | 94.4 |
| 7 | TOLUENE | 11.98 PPB | 140.6 |
| 8 | UNKNOWN | 5.801 MVS | 161.0 |
| 9 | M,P-XYLENE | 83.47 PPB | 289.8 |
| 10 | O-XYLENE | 19.58 PPB | 347.0 |

NOTES

JOE BYRD, JR.
DULUTH ANGB
AIR BLANK



TIME PRINTED: MAY 17,95 09:06

SAMPLE TIME: MAY 17,95 08:58

METHOD

| | | |
|----------------|-------|--------|
| SLOPE UP | 0.500 | MV/SEC |
| SLOPE DOWN | 1.500 | MV/SEC |
| MIN AREA | 0.000 | MVSEC |
| MIN HEIGHT | 0.000 | MV |
| ANALYSIS DELAY | 0.0 | SEC |
| WINDOW PERCENT | 10.0 | % |
| DET FLOW | 12 | ML/MIN |
| B/F FLOW | 12 | ML/MIN |
| AUX FLOW | 0 | ML/MIN |
| OVEN TEMP | 40 | C |
| AMB TEMP | 30 | C |
| MAX GAIN | 1000 | |
| ANALYSIS TIME | 500.0 | SEC |

PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.304 MVS | 19.1 |
| 2 | UNKNOWN | 10.12 MVS | 21.1 |
| 3 | UNKNOWN | 187.3 MVS | 23.2 |
| 4 | UNKNOWN | 2.390 MVS | 30.2 |
| 5 | UNKNOWN | 0.537 MVS | 38.0 |
| 6 | BENZENE | 0.722 PPB | 77.2 |
| 7 | UNKNOWN | 4.347 MVS | 85.4 |
| 8 | UNKNOWN | 8.402 MVS | 95.0 |
| 9 | UNKNOWN | 5.935 MVS | 117.4 |
| 10 | TOLUENE | 3.303 PPB | 140.4 |
| 11 | ETHYLBENZENE | 0.340 PPB | 249.6 |
| 12 | M,P-XYLENE | 31.19 PPB | 290.6 |
| 13 | O-XYLENE | 11.22 PPB | 346.3 |

NOTES

JOE BYRD, JR.

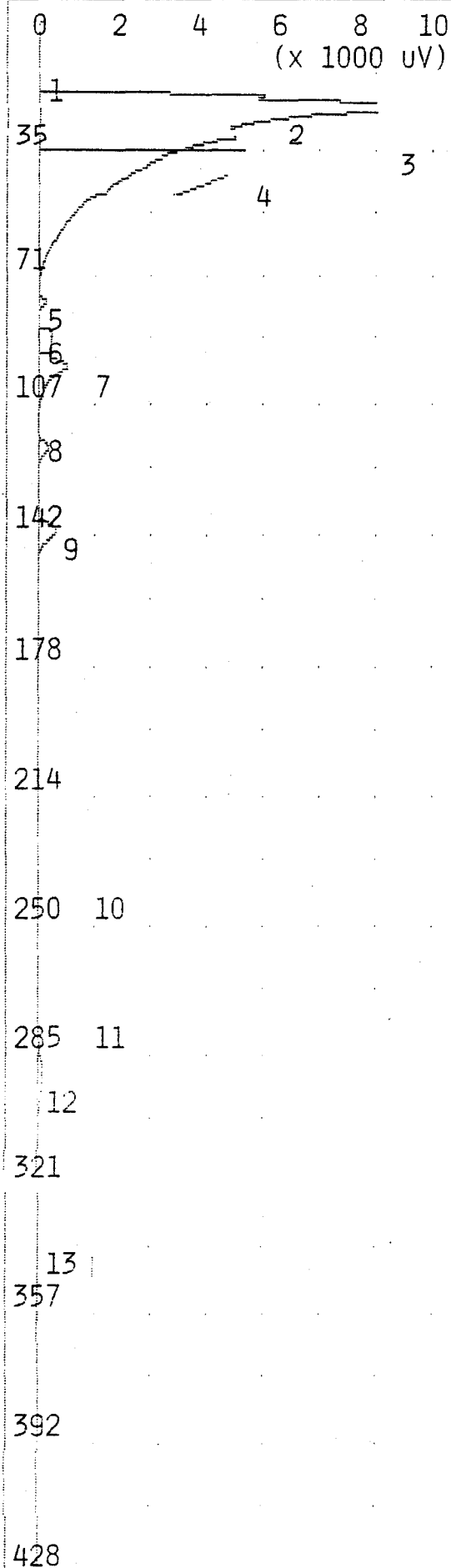
DULUTH ANGB

021-027BH

4.0- 6.0 10G

ANALYTIC #8

10S+ GC FUNCTION ANALYSIS REPORT



TIME PRINTED: MAY 17,95 09:18

SAMPLE TIME: MAY 17,95 09:10

METHOD

| | | |
|----------------|-------|--------|
| SLOPE UP | 0.500 | MV/SEC |
| SLOPE DOWN | 1.500 | MV/SEC |
| MIN AREA | 0.000 | MVSEC |
| MIN HEIGHT | 0.000 | MV |
| ANALYSIS DELAY | 0.0 | SEC |
| WINDOW PERCENT | 10.0 | % |
| DET FLOW | 12 | ML/MIN |
| B/F FLOW | 12 | ML/MIN |
| AUX FLOW | 0 | ML/MIN |
| OVEN TEMP | 40 | C |
| AMB TEMP | 30 | C |
| MAX GAIN | 1000 | |
| ANALYSIS TIME | 500.0 | SEC |

PEAK REPORT

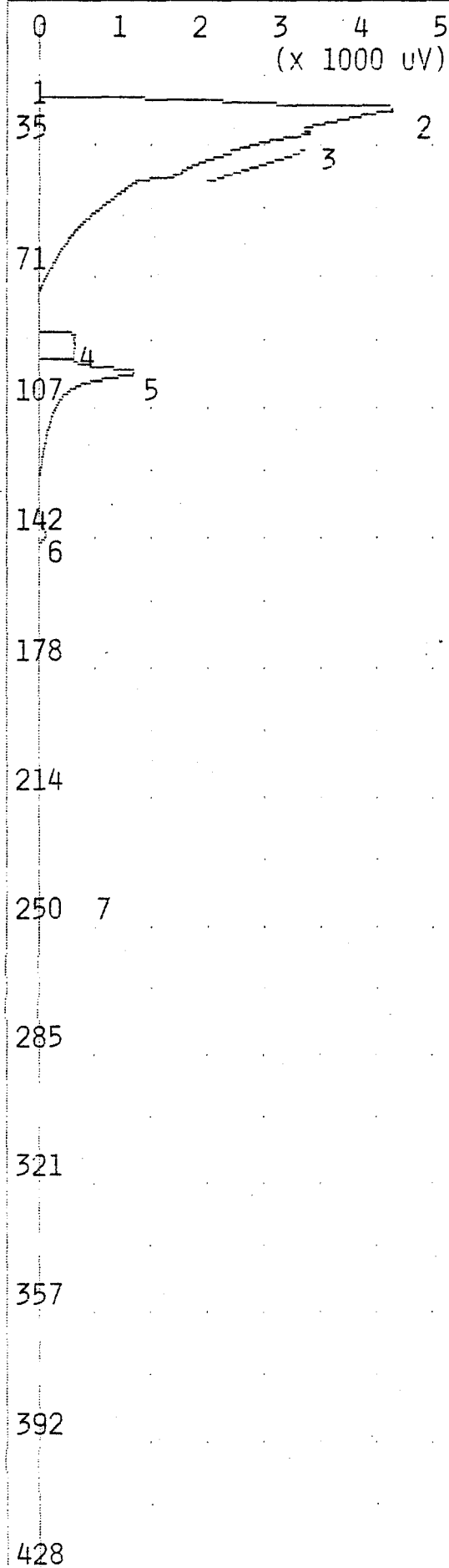
| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.256 MVS | 19.0 |
| 2 | UNKNOWN | 9.025 MVS | 20.9 |
| 3 | UNKNOWN | 133.0 MVS | 23.3 |
| 4 | UNKNOWN | 0.828 MVS | 29.8 |
| 5 | BENZENE | 0.464 PPB | 76.0 |
| 6 | UNKNOWN | 4.057 MVS | 85.8 |
| 7 | UNKNOWN | 8.585 MVS | 94.0 |
| 8 | UNKNOWN | 3.528 MVS | 116.8 |
| 9 | TOLUENE | 2.805 PPB | 139.0 |
| 10 | UNKNOWN | 0.189 MVS | 241.8 |
| 11 | ETHYLBENZENE | 2.698 PPB | 272.2 |
| 12 | M,P-XYLENE | 8.095 PPB | 289.6 |
| 13 | O-XYLENE | 4.406 PPB | 340.0 |

NOTES

JOE BYRD, JR.
DULUTH ANGB
021-027BH
8.0-10.0 10G

ANALYSIS #9

10S+ GC FUNCTION ANALYSIS REPORT



TIME PRINTED: MAY 17,95 09:30

SAMPLE TIME: MAY 17,95 09:21

METHOD

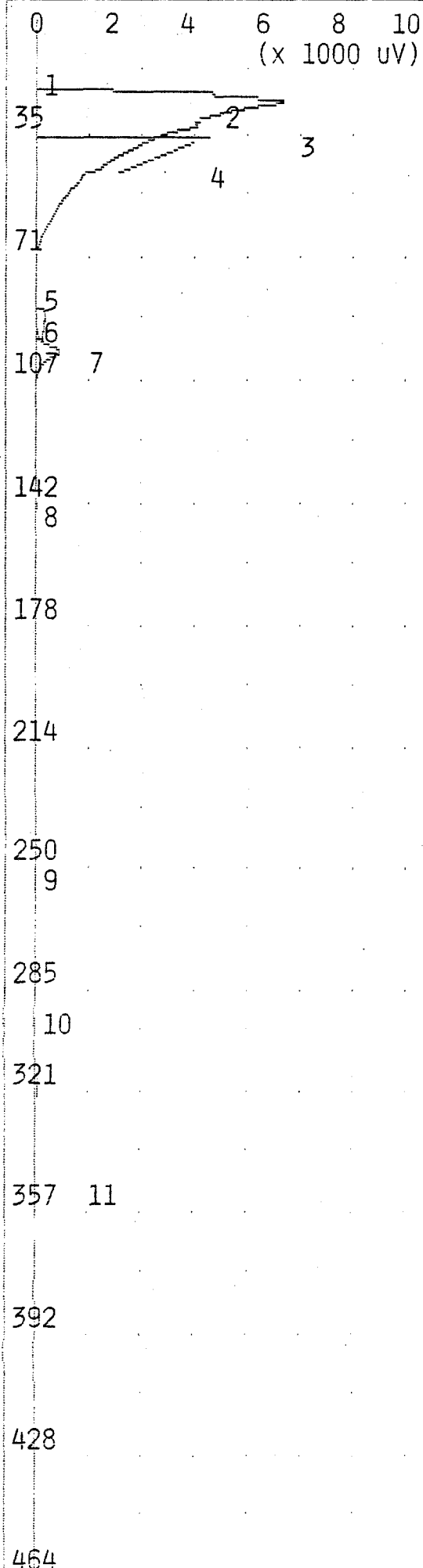
SLOPE UP 0.500 MV/SEC
SLOPE DOWN 1.500 MV/SEC
MIN AREA 0.000 MVSEC
MIN HEIGHT 0.000 MV
ANALYSIS DELAY 0.0 SEC
WINDOW PERCENT 10.0 %
DET FLOW 12 ML/MIN
B/F FLOW 12 ML/MIN
AUX FLOW 0 ML/MIN
OVEN TEMP 40 C
AMB TEMP 30 C
MAX GAIN 1000
ANALYSIS TIME 500.0 SEC

PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.042 MVS | 19.0 |
| 2 | UNKNOWN | 100.6 MVS | 23.6 |
| 3 | UNKNOWN | 0.442 MVS | 30.1 |
| 4 | BENZENE | 2.115 PPB | 85.2 |
| 5 | UNKNOWN | 17.87 MVS | 94.9 |
| 6 | TOLUENE | 1.215 PPB | 139.4 |
| 7 | UNKNOWN | 0.753 MVS | 242.4 |

NOTES

JOE BYRD, JR.
DULUTH ANGB
AIR BLANK



TIME PRINTED: MAY 17,95 09:42

SAMPLE TIME: MAY 17,95 09:34

METHOD

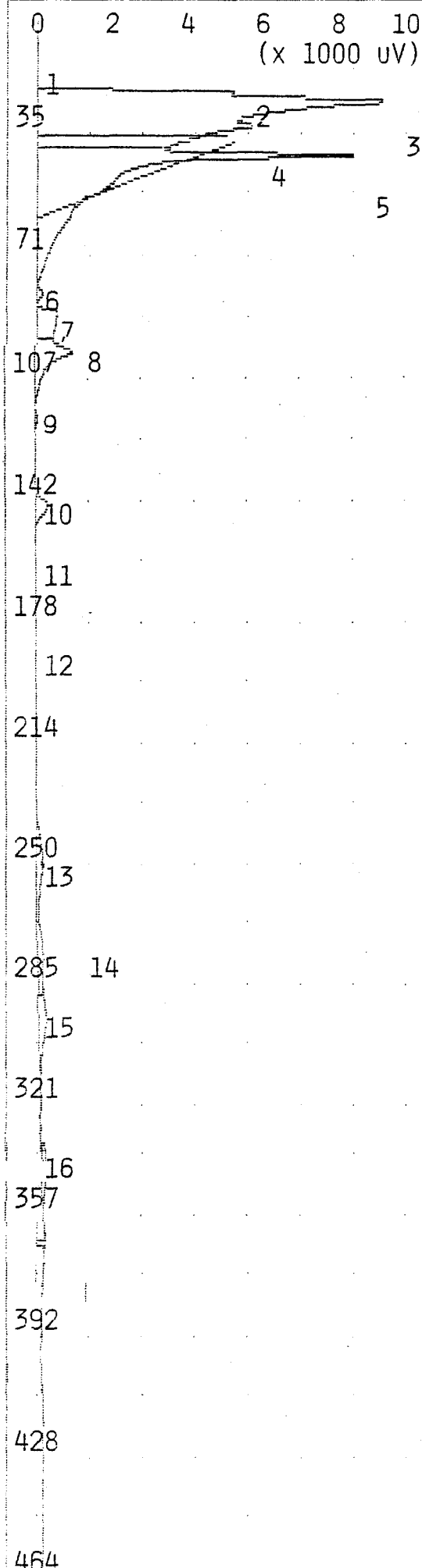
SLOPE UP 0.500 MV/SEC
 SLOPE DOWN 1.500 MV/SEC
 MIN AREA 0.000 MVSEC
 MIN HEIGHT 0.000 MV
 ANALYSIS DELAY 0.0 SEC
 WINDOW PERCENT 10.0 %
 DET FLOW 12 ML/MIN
 B/F FLOW 12 ML/MIN
 AUX FLOW 0 ML/MIN
 OVEN TEMP 40 C
 AMB TEMP 30 C
 MAX GAIN 1000
 ANALYSIS TIME 500.0 SEC

PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.064 MVS | 18.9 |
| 2 | UNKNOWN | 7.599 MVS | 22.1 |
| 3 | UNKNOWN | 121.6 MVS | 24.2 |
| 4 | UNKNOWN | 0.433 MVS | 30.6 |
| 5 | BENZENE | 0.029 PPB | 80.0 |
| 6 | UNKNOWN | 2.715 MVS | 84.9 |
| 7 | UNKNOWN | 13.01 MVS | 96.4 |
| 8 | TOLUENE | 1.969 PPB | 141.0 |
| 9 | ETHYLBENZENE | 2.156 PPB | 248.2 |
| 10 | M,P-XYLENE | 2.776 PPB | 292.0 |
| 11 | O-XYLENE | 1.850 PPB | 343.6 |

NOTES

JOE BYRD, JR.
 DULUTH ANGB
 021-028BH
 0.5- 2.5 10G



TIME PRINTED: MAY 17,95 09:54

SAMPLE TIME: MAY 17,95 09:46

METHOD

SLOPE UP 0.500 MV/SEC
 SLOPE DOWN 1.500 MV/SEC
 MIN AREA 0.000 MVSEC
 MIN HEIGHT 0.000 MV
 ANALYSIS DELAY 0.0 SEC
 WINDOW PERCENT 10.0 %
 DET FLOW 12 ML/MIN
 B/F FLOW 12 ML/MIN
 AUX FLOW 0 ML/MIN
 OVEN TEMP 40 C
 AMB TEMP 30 C
 MAX GAIN 1000
 ANALYSIS TIME 500.0 SEC

PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.649 MVS | 19.7 |
| 2 | UNKNOWN | 8.885 MVS | 22.2 |
| 3 | UNKNOWN | 92.85 MVS | 24.4 |
| 4 | UNKNOWN | 1.992 MVS | 31.2 |
| 5 | UNKNOWN | 72.39 MVS | 39.5 |
| 6 | BENZENE | 0.157 PPB | 80.2 |
| 7 | UNKNOWN | 7.027 MVS | 84.8 |
| 8 | UNKNOWN | 11.89 MVS | 96.9 |
| 9 | UNKNOWN | 0.028 MVS | 115.0 |
| 10 | TOLUENE | 1.869 PPB | 141.6 |
| 11 | UNKNOWN | 0.994 MVS | 161.8 |
| 12 | UNKNOWN | 1.665 MVS | 184.4 |
| 13 | UNKNOWN | 4.839 MVS | 247.7 |
| 14 | ETHYLBENZENE | 3.057 PPB | 275.2 |
| 15 | M,P-XYLENE | 5.382 PPB | 294.6 |
| 16 | O-XYLENE | 5.461 PPB | 339.3 |

NOTES

JOE BYRD, JR.
 DULUTH ANGB
 021-028BH
 8.0-10.0 20G

0 2 4 6 8 10
(X 10 MV)

TIME PRINTED: MAY 17,95 10:06

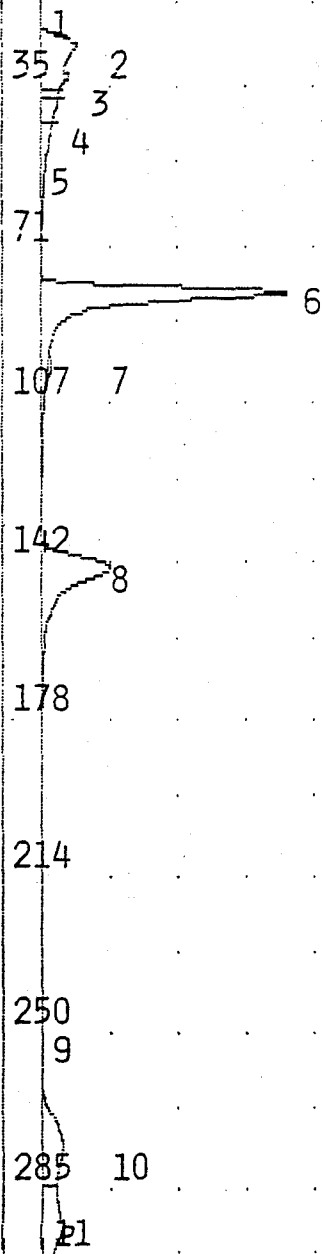
SAMPLE TIME: MAY 17,95 09:58

METHOD

SLOPE UP. 0.500 MV/SEC
SLOPE DOWN 1.500 MV/SEC
MIN AREA 0.000 MVSEC
MIN HEIGHT 0.000 MV
ANALYSIS DELAY 0.0 SEC
WINDOW PERCENT 10.0 %
DET FLOW 12 ML/MIN
B/F FLOW 12 ML/MIN
AUX FLOW 0 ML/MIN
OVEN TEMP 40 C
AMB TEMP 29 C
MAX GAIN 1000
ANALYSIS TIME 500.0 SEC

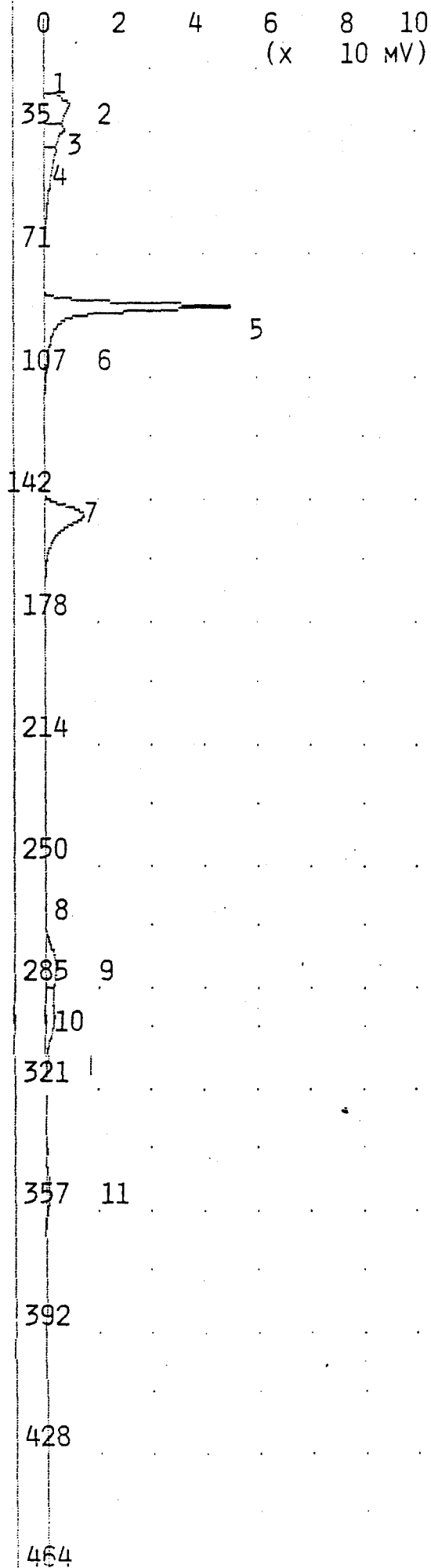
PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.046 MVS | 19.4 |
| 2 | UNKNOWN | 7.622 MVS | 22.1 |
| 3 | UNKNOWN | 46.85 MVS | 24.2 |
| 4 | UNKNOWN | 31.99 MVS | 31.2 |
| 5 | UNKNOWN | 56.32 MVS | 36.9 |
| 6 | BENZENE | 96.58 PPB | 79.8 |
| 7 | UNKNOWN | 2.715 MVS | 96.5 |
| 8 | TOLUENE | 70.20 PPB | 141.7 |
| 9 | UNKNOWN | 1.079 MVS | 246.1 |
| 10 | ETHYLBENZENE | 61.78 PPB | 273.0 |
| 11 | M,P-XYLENE | 118.6 PPB | 290.9 |
| 12 | O-XYLENE | 51.25 PPB | 344.3 |



NOTES

JOE BYRD, JR.
DULUTH ANGB
100 PPB BTEX



TIME PRINTED: MAY 17,95 14:49

SAMPLE TIME: MAY 17,95 14:41

METHOD

SLOPE UP 0.500 MV/SEC
SLOPE DOWN 1.500 MV/SEC
MIN AREA 0.000 MVSEC
MIN HEIGHT 0.000 MV
ANALYSIS DELAY 0.0 SEC
WINDOW PERCENT 10.0 %
DET FLOW 12 ML/MIN
B/F FLOW 12 ML/MIN
AUX FLOW 0 ML/MIN
OVEN TEMP 40 C
AMB TEMP 31 C
MAX GAIN 1000

ANALYSIS TIME 500.0 SEC

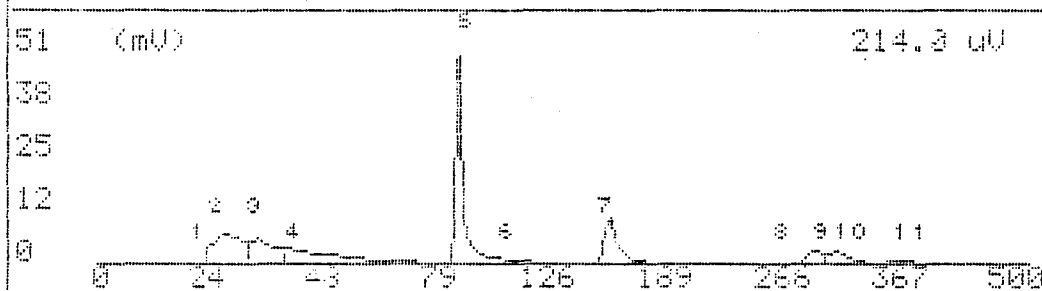
PEAK REPORT

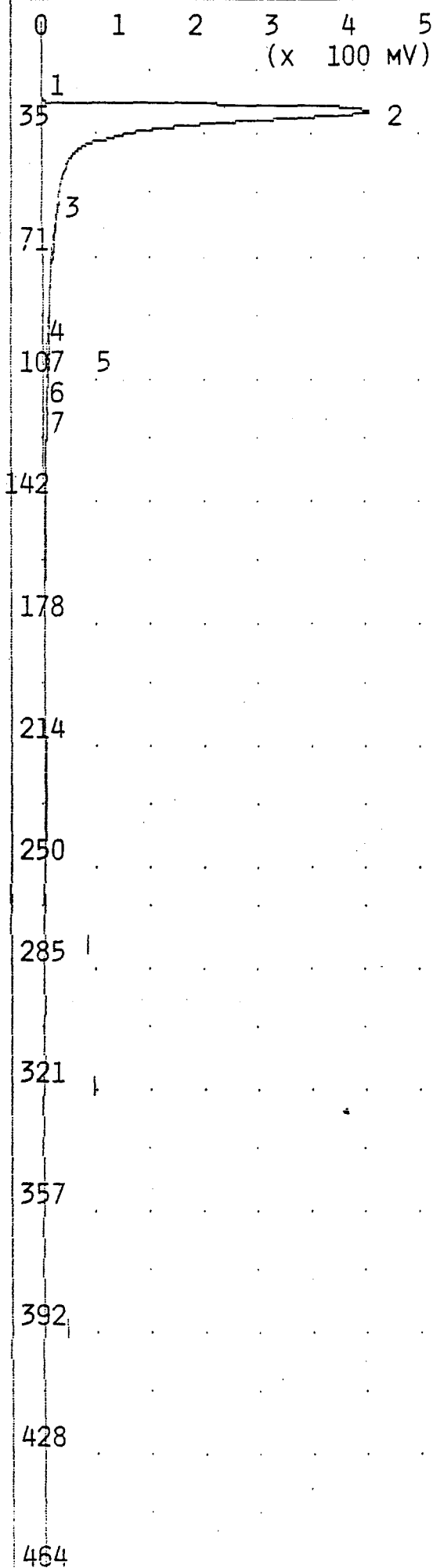
| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.042 MVS | 20.6 |
| 2 | UNKNOWN | 55.58 MVS | 25.6 |
| 3 | UNKNOWN | 31.74 MVS | 32.8 |
| 4 | UNKNOWN | 56.63 MVS | 39.0 |
| 5 | BENZENE | 95.93 PPB | 84.2 |
| 6 | UNKNOWN | 1.090 MVS | 98.9 |
| 7 | TOLUENE | 91.85 PPB | 145.2 |
| 8 | UNKNOWN | 0.577 MVS | 253.0 |
| 9 | ETHYLBENZENE | 87.00 PPB | 277.0 |
| 10 | M,P-XYLENE | 177.5 PPB | 294.4 |
| 11 | O-XYLENE | 92.84 PPB | 347.3 |

NOTES

JOE BYRD, JR.
DULUTH ANGB
100 PPB BTEX

| S.C. Ready | | 105+ GC Function | | May 17, 95 15:08 | |
|--|--------------|------------------------|------|------------------|--|
| -- Analysis No 25 | | -- Run at - May 17, 95 | | 14:41 - | |
| Pk No | Name | Conc/Area | Term | Ret. time | |
| 3 | Unknown | 31.74 mV | -No- | 32.3 sec | |
| 4 | Unknown | 56.83 mV | -No- | 33.3 sec | |
| 5 | benzene | 100.0 ppo | -No- | 34.3 sec | |
| 6 | Unknown | 1.090 mV | -No- | 35.0 sec | |
| 7 | toluene | 100.0 ppo | -No- | 145.0 sec | |
| 8 | Unknown | 0.177 mV | -No- | 255.0 sec | |
| 9 | ethylbenzene | 100.0 ppo | -No- | 257.5 sec | |
| 10 | m,p-xylene | 200.0 ppo | -No- | 264.4 sec | |
| 11 | o-xylene | 99.99 ppo | -No- | 347.6 sec | |
| - Detected 11 peaks. Use ↑ ↓ to scroll | | | | [505 sec] | |





TIME PRINTED: MAY 17,95 15:18

SAMPLE TIME: MAY 17,95 15:09

METHOD

SLOPE UP 0.500 MV/SEC
SLOPE DOWN 1.500 MV/SEC
MIN AREA 0.000 MVSEC
MIN HEIGHT 0.000 MV
ANALYSIS DELAY 0.0 SEC
WINDOW PERCENT 10.0 %
DET FLOW 12 ML/MIN
B/F FLOW 12 ML/MIN
AUX FLOW 0 ML/MIN
OVEN TEMP 40 C
AMB TEMP 31 C
MAX GAIN 1000
ANALYSIS TIME 500.0 SEC

PEAK REPORT

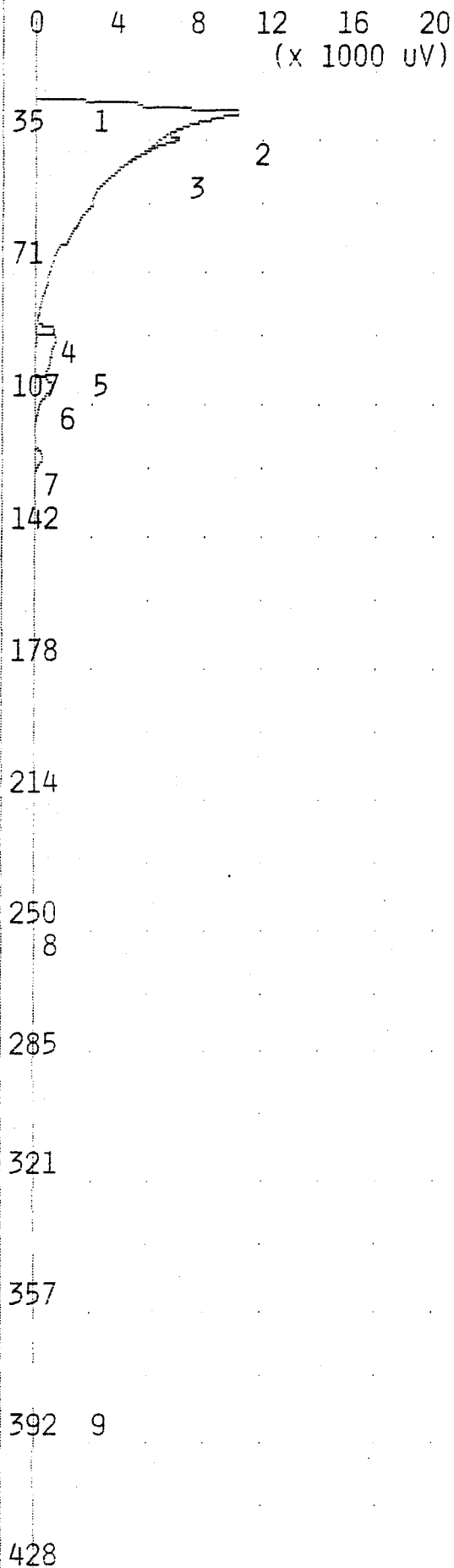
| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|------------|-------|
| 1 | UNKNOWN | 0.025 MVS | 20.5 |
| 2 | UNKNOWN | 4.491 VSEC | 26.8 |
| 3 | UNKNOWN | 21.96 MVS | 54.2 |
| 4 | BENZENE | 1.045 PPB | 84.4 |
| 5 | UNKNOWN | 2.850 MVS | 91.8 |
| 6 | UNKNOWN | 3.364 MVS | 95.8 |
| 7 | UNKNOWN | 7.268 MVS | 100.5 |

NOTES

JOE BYRD, JR.
DULUTH ANGB
AIR BLANK

ANALYSIS #27

10S+ GC FUNCTION ANALYSIS REPORT



TIME PRINTED: MAY 17,95 15:29

SAMPLE TIME: MAY 17,95 15:21

METHOD

| | | |
|----------------|-------|--------|
| SLOPE UP | 0.500 | MV/SEC |
| SLOPE DOWN | 1.500 | MV/SEC |
| MIN AREA | 0.000 | MVSEC |
| MIN HEIGHT | 0.000 | MV |
| ANALYSIS DELAY | 0.0 | SEC |
| WINDOW PERCENT | 10.0 | % |
| DET FLOW | 12 | ML/MIN |
| B/F FLOW | 12 | ML/MIN |
| AUX FLOW | 0 | ML/MIN |
| OVEN TEMP | 40 | C |
| AMB TEMP | 31 | C |
| MAX GAIN | 1000 | |
| ANALYSIS TIME | 500.0 | SEC |

PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.767 MVS | 21.1 |
| 2 | UNKNOWN | 237.5 MVS | 25.9 |
| 3 | UNKNOWN | 2.292 MVS | 33.2 |
| 4 | BENZENE | 1.068 PPB | 84.8 |
| 5 | UNKNOWN | 8.449 MVS | 88.0 |
| 6 | UNKNOWN | 5.824 MVS | 100.1 |
| 7 | UNKNOWN | 3.057 MVS | 119.3 |
| 8 | ETHYLBENZENE | 7.507 PPB | 251.4 |
| 9 | O-XYLENE | 12.86 PPB | 381.3 |

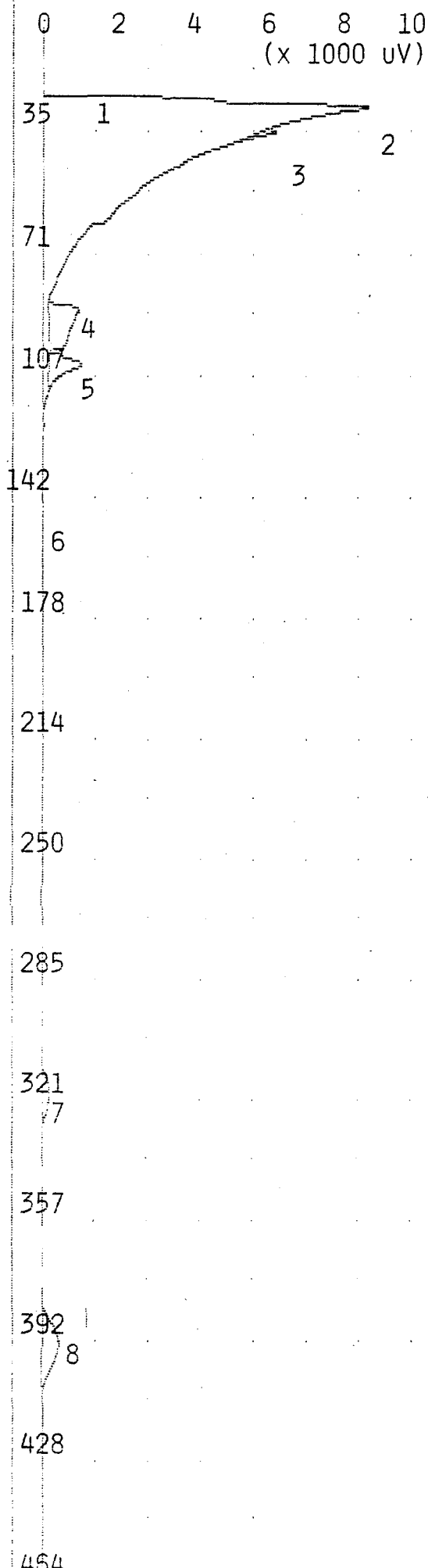
NOTES

JOE BYRD, JR.

DULUTH ANGB

017-024BH

0.5- 2.5 10G



TIME PRINTED: MAY 17,95 15:41

SAMPLE TIME: MAY 17,95 15:33

METHOD

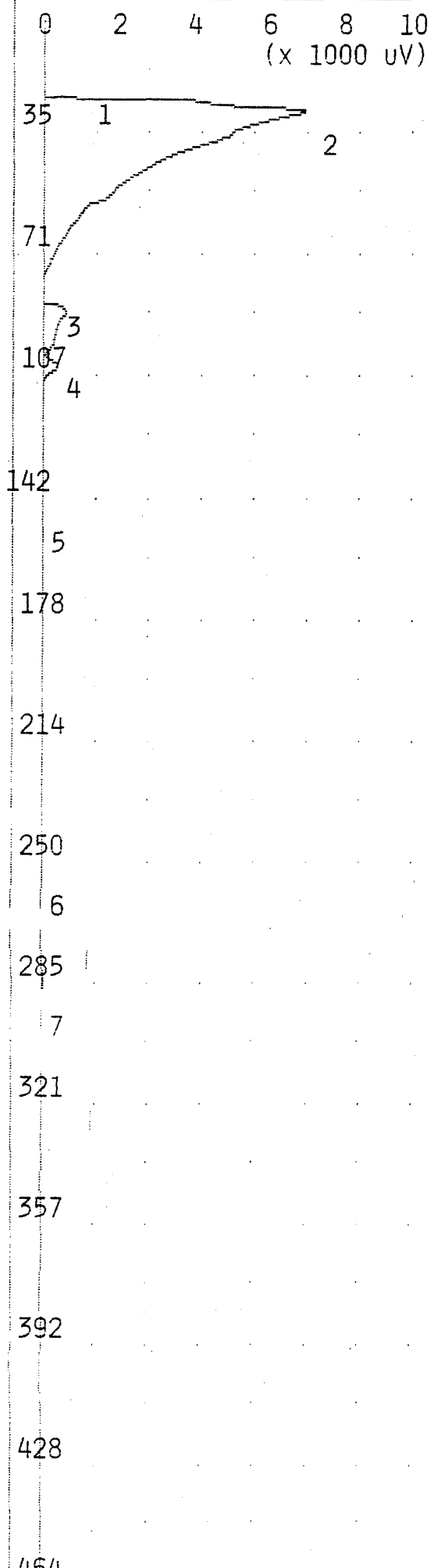
SLOPE UP 0.500 MV/SEC
SLOPE DOWN 1.500 MV/SEC
MIN AREA 0.000 MVSEC
MIN HEIGHT 0.000 MV
ANALYSIS DELAY 0.0 SEC
WINDOW PERCENT 10.0 %
DET FLOW 12 ML/MIN
B/F FLOW 12 ML/MIN
AUX FLOW 0 ML/MIN
OVEN TEMP 40 C
AMB TEMP 31 C
MAX GAIN 1000
ANALYSIS TIME 500.0 SEC

PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.147 MVS | 21.2 |
| 2 | UNKNOWN | 205.7 MVS | 26.2 |
| 3 | UNKNOWN | 1.139 MVS | 33.6 |
| 4 | BENZENE | 4.457 PPB | 85.7 |
| 5 | UNKNOWN | 4.166 MVS | 101.2 |
| 6 | TOLUENE | 1.165 PPB | 146.2 |
| 7 | M,P-XYLENE | 43.98 PPB | 317.6 |
| 8 | UNKNOWN | 12.97 MVS | 393.0 |

NOTES

JOE BYRD, JR.
DULUTH ANGB
017-024BH
4.0- 6.0 10G



TIME PRINTED: MAY 17,95 15:55

SAMPLE TIME: MAY 17,95 15:46

METHOD

SLOPE UP 0.500 MV/SEC
SLOPE DOWN 1.500 MV/SEC
MIN AREA 0.000 MVSEC
MIN HEIGHT 0.000 MV
ANALYSIS DELAY 0.0 SEC
WINDOW PERCENT 10.0 %
DET FLOW 12 ML/MIN
B/F FLOW 12 ML/MIN
AUX FLOW 0 ML/MIN
OVEN TEMP 40 C
AMB TEMP 31 C
MAX GAIN 1000

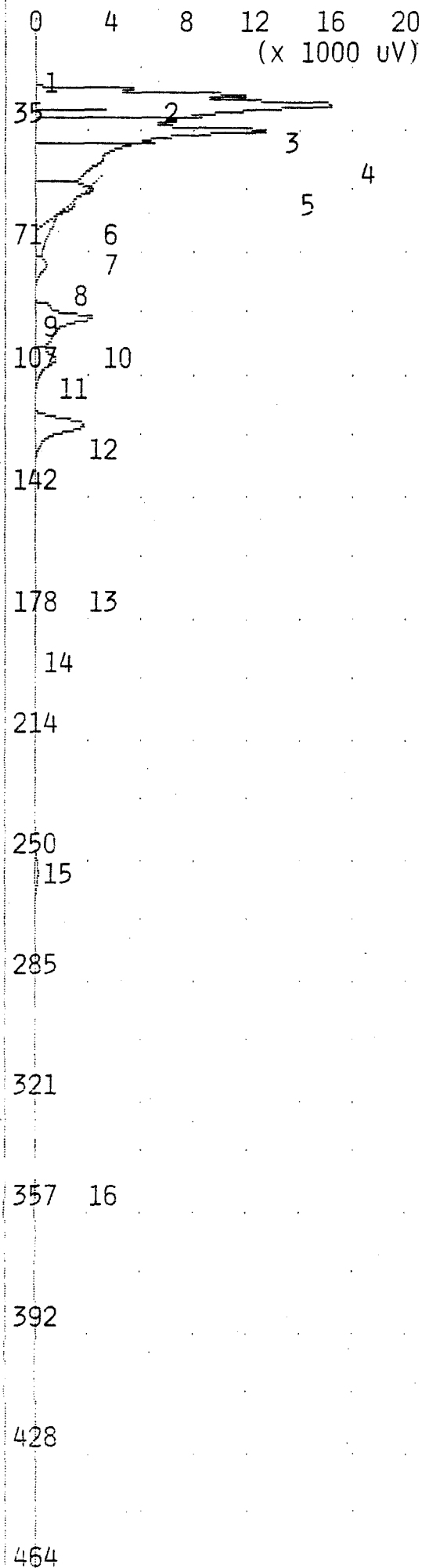
ANALYSIS TIME 500.0 SEC

PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.164 MVS | 21.4 |
| 2 | UNKNOWN | 160.2 MVS | 27.2 |
| 3 | BENZENE | 5.662 PPB | 86.5 |
| 4 | UNKNOWN | 5.613 MVS | 102.0 |
| 5 | TOLUENE | 1.442 PPB | 148.0 |
| 6 | ETHYLBENZENE | 3.653 PPB | 255.2 |
| 7 | M,P-XYLENE | 8.594 PPB | 295.2 |

NOTES

JOE BYRD, JR.
DULUTH ANGB
017-025BH
0.5- 2.5 10G



TIME PRINTED: MAY 17,95 16:06

SAMPLE TIME: MAY 17,95 15:58

METHOD

SLOPE UP 0.500 MV/SEC
SLOPE DOWN 1.500 MV/SEC
MIN AREA 0.000 MVSEC
MIN HEIGHT 0.000 MV
ANALYSIS DELAY 0.0 SEC
WINDOW PERCENT 10.0 %
DET FLOW 12 ML/MIN
B/F FLOW 12 ML/MIN
AUX FLOW 0 ML/MIN
OVEN TEMP 40 C
AMB TEMP 31 C
MAX GAIN 1000
ANALYSIS TIME 500.0 SEC

PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.904 MVS | 4.7 |
| 2 | UNKNOWN | 7.654 MVS | 21.3 |
| 3 | UNKNOWN | 23.49 MVS | 22.8 |
| 4 | UNKNOWN | 85.60 MVS | 26.0 |
| 5 | UNKNOWN | 91.80 MVS | 33.4 |
| 6 | UNKNOWN | 0.513 MVS | 42.0 |
| 7 | UNKNOWN | 37.83 MVS | 50.8 |
| 8 | UNKNOWN | 0.840 MVS | 55.1 |
| 9 | UNKNOWN | 5.843 MVS | 73.2 |
| 10 | BENZENE | 10.65 PPB | 88.1 |
| 11 | UNKNOWN | 8.634 MVS | 100.2 |
| 12 | UNKNOWN | 15.93 MVS | 119.2 |
| 13 | UNKNOWN | 3.533 MVS | 168.8 |
| 14 | UNKNOWN | 2.439 MVS | 187.8 |
| 15 | ETHYLBENZENE | 16.37 PPB | 251.2 |
| 16 | O-XYLENE | 4.179 PPB | 344.6 |

NOTES

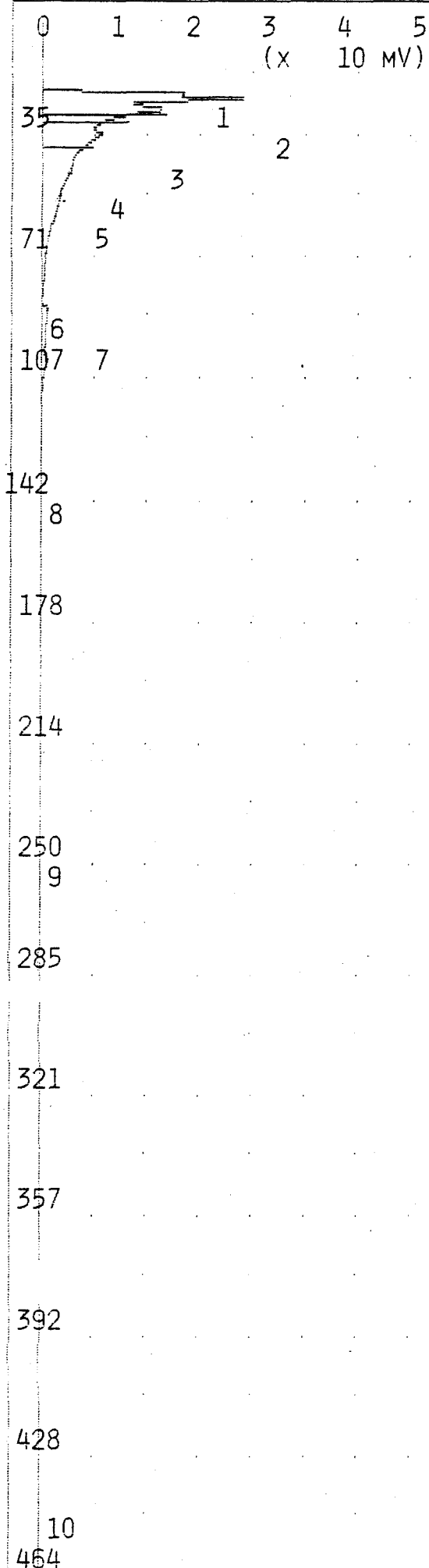
JOE BYRD, JR.

DULUTH ANGB

017-024BH

8.0-10.0 15G

ANALYSIS #31 10S+ GC FUNCTION ANALYSIS REPORT



TIME PRINTED: MAY 17,95 16:18

SAMPLE TIME: MAY 17,95 16:10

METHOD

SLOPE UP 0.500 MV/SEC

SLOPE DOWN 1.500 MV/SEC

MIN AREA 0.000 MVSEC

MIN HEIGHT 0.000 MV

ANALYSIS DELAY 0.0 SEC

WINDOW PERCENT 10.0 %

DET FLOW 12 ML/MIN

B/F FLOW 12 ML/MIN

AUX FLOW 0 ML/MIN

OVEN TEMP 40 C

AMB TEMP 31 C

MAX GAIN 1000

ANALYSIS TIME 500.0 SEC

PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 24.96 MVS | 21.1 |
| 2 | UNKNOWN | 51.13 MVS | 22.6 |
| 3 | UNKNOWN | 88.87 MVS | 25.9 |
| 4 | UNKNOWN | 137.0 MVS | 33.0 |
| 5 | UNKNOWN | 0.507 MVS | 43.9 |
| 6 | BENZENE | 5.534 PPB | 84.9 |
| 7 | UNKNOWN | 7.535 MVS | 100.0 |
| 8 | TOLUENE | 0.883 PPB | 145.8 |
| 9 | ETHYLBENZENE | 3.561 PPB | 252.0 |
| 10 | UNKNOWN | 0.337 MVS | 442.4 |

NOTES

JOE BYRD, JR.
DULUTH ANGB
017-025BH
4.0- 6.0 10G

ANALYSIS #32

10S+ GC FUNCTION ANALYSIS REPORT

0 1 2 3 4 5
(x 10 mV)

TIME PRINTED: MAY 17,95 16:30

SAMPLE TIME: MAY 17,95 16:22

METHOD

SLOPE UP 0.500 MV/SEC
SLOPE DOWN 1.500 MV/SEC
MIN AREA 0.000 MVSEC
MIN HEIGHT 0.000 MV
ANALYSIS DELAY 0.0 SEC
WINDOW PERCENT 10.0 %
DET FLOW 12 ML/MIN
B/F FLOW 12 ML/MIN
AUX FLOW 0 ML/MIN
OVEN TEMP 40 C
AMB TEMP 31 C
MAX GAIN 1000
ANALYSIS TIME 500.0 SEC

PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.054 MVS | 21.1 |
| 2 | UNKNOWN | 58.48 MVS | 26.3 |
| 3 | UNKNOWN | 33.14 MVS | 33.8 |
| 4 | UNKNOWN | 58.62 MVS | 40.0 |
| 5 | BENZENE | 96.14 PPB | 85.6 |
| 6 | UNKNOWN | 1.170 MVS | 100.5 |
| 7 | TOLUENE | 80.53 PPB | 146.4 |
| 8 | UNKNOWN | 0.430 MVS | 251.4 |
| 9 | ETHYLBENZENE | 64.00 PPB | 277.8 |
| 10 | M,P-XYLENE | 115.2 PPB | 296.5 |
| 11 | O-XYLENE | 108.1 PPB | 349.6 |

NOTES

JOE BYRD, JR.
DULUTH ANGB
100 PPB BTEX

35 1
2
3
4

71

107 6

142

7

178

214

250

8

285 9

10

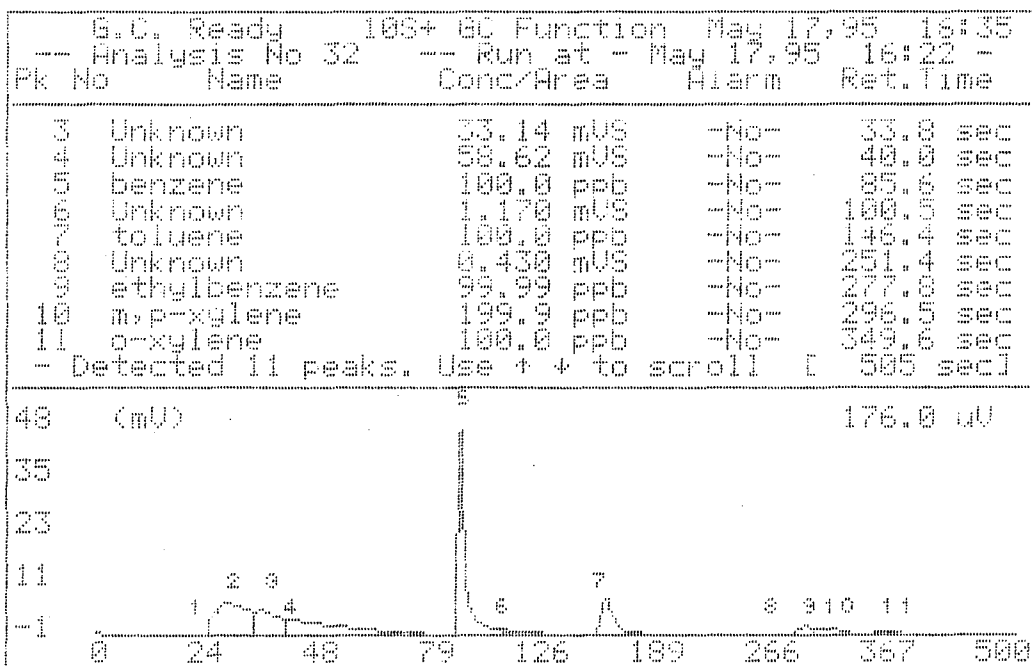
321

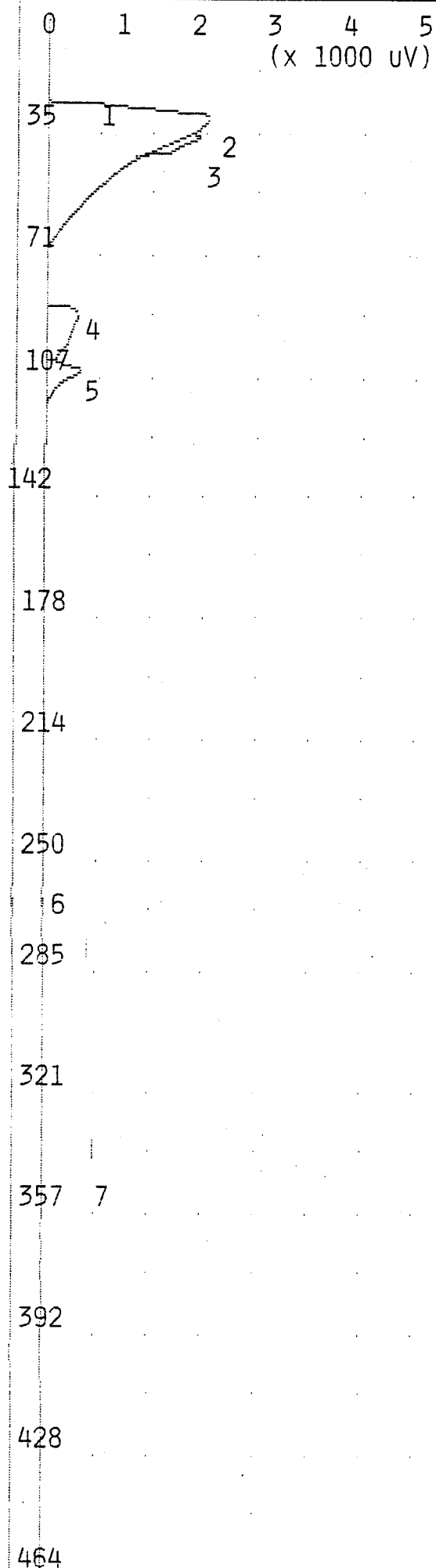
357 11

392

428

464





TIME PRINTED: MAY 17,95 16:44

SAMPLE TIME: MAY 17,95 16:36

METHOD

SLOPE UP 0.500 MV/SEC
SLOPE DOWN 1.500 MV/SEC
MIN AREA 0.000 MVSEC
MIN HEIGHT 0.000 MV
ANALYSIS DELAY 0.0 SEC
WINDOW PERCENT 10.0 %
DET FLOW 12 ML/MIN
B/F FLOW 12 ML/MIN
AUX FLOW 0 ML/MIN
OVEN TEMP .40 C
AMB TEMP 32 C
MAX GAIN 1000

ANALYSIS TIME 500.0 SEC

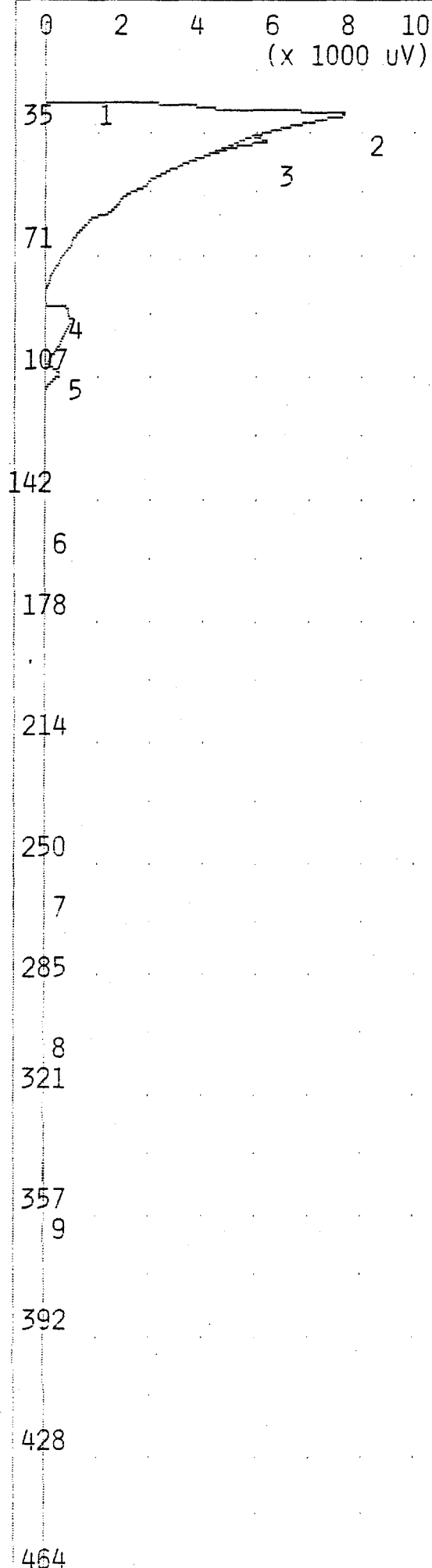
PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.096 MVS | 21.8 |
| 2 | UNKNOWN | 66.38 MVS | 28.9 |
| 3 | UNKNOWN | 1.179 MVS | 34.7 |
| 4 | BENZENE | 4.979 PPB | 87.0 |
| 5 | UNKNOWN | 5.104 MVS | 102.8 |
| 6 | ETHYLBENZENE | 4.472 PPB | 257.3 |
| 7 | O-XYLENE | 3.847 PPB | 342.6 |

NOTES

JOE BYRD, JR.
DULUTH ANGB
AIR BLANK

ANALYSIS #34 10S+ GC FUNCTION ANALYSIS REPORT



TIME PRINTED: MAY 17,95 16:56

SAMPLE TIME: MAY 17,95 16:48

METHOD

SLOPE UP 0.500 MV/SEC
SLOPE DOWN 1.500 MV/SEC
MIN AREA 0.000 MVSEC
MIN HEIGHT 0.000 MV
ANALYSIS DELAY 0.0 SEC
WINDOW PERCENT 10.0 %
DET FLOW 12 ML/MIN
B/F FLOW 12 ML/MIN
AUX FLOW 0 ML/MIN
OVEN TEMP 40 C
AMB TEMP 32 C
MAX GAIN 1000
ANALYSIS TIME 500.0 SEC

PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.048 MVS | 22.0 |
| 2 | UNKNOWN | 187.3 MVS | 28.0 |
| 3 | UNKNOWN | 1.479 MVS | 35.8 |
| 4 | BENZENE | 5.285 PPB | 88.2 |
| 5 | UNKNOWN | 2.189 MVS | 103.8 |
| 6 | TOLUENE | 3.223 PPB | 149.2 |
| 7 | ETHYLBENZENE | 6.868 PPB | 256.5 |
| 8 | M,P-XYLENE | 11.97 PPB | 300.5 |
| 9 | O-XYLENE | 0.894 PPB | 355.0 |

NOTES

JOE BYRD, JR.
DULUTH ANGB
017-022BH
0.5- 2.5 10G

0 4 8 12 16 20
(x 1000 uV)

TIME PRINTED: MAY 17,95 17:08

SAMPLE TIME: MAY 17,95 16:59

METHOD

SLOPE UP 0.500 MV/SEC
SLOPE DOWN 1.500 MV/SEC
MIN AREA 0.000 MVSEC
MIN HEIGHT 0.000 MV
ANALYSIS DELAY 0.0 SEC
WINDOW PERCENT 10.0 %
DET FLOW 12 ML/MIN
B/F FLOW 12 ML/MIN
AUX FLOW 0 ML/MIN
OVEN TEMP 40 C
AMB TEMP 32 C
MAX GAIN 1000
ANALYSIS TIME 500.0 SEC

PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.727 MVS | 6.0 |
| 2 | UNKNOWN | 1.583 MVS | 11.0 |
| 3 | UNKNOWN | 4.424 MVS | 25.1 |
| 4 | UNKNOWN | 15.74 MVS | 27.6 |
| 5 | UNKNOWN | 197.2 MVS | 31.0 |
| 6 | UNKNOWN | 2.110 MVS | 39.3 |
| 7 | BENZENE | 3.015 PPB | 85.0 |
| 8 | UNKNOWN | 6.483 MVS | 92.1 |
| 9 | UNKNOWN | 2.666 MVS | 108.1 |
| 10 | TOLUENE | 3.050 PPB | 153.6 |
| 11 | ETHYLBENZENE | 6.981 PPB | 256.0 |
| 12 | M,P-XYLENE | 8.502 PPB | 304.5 |

NOTES

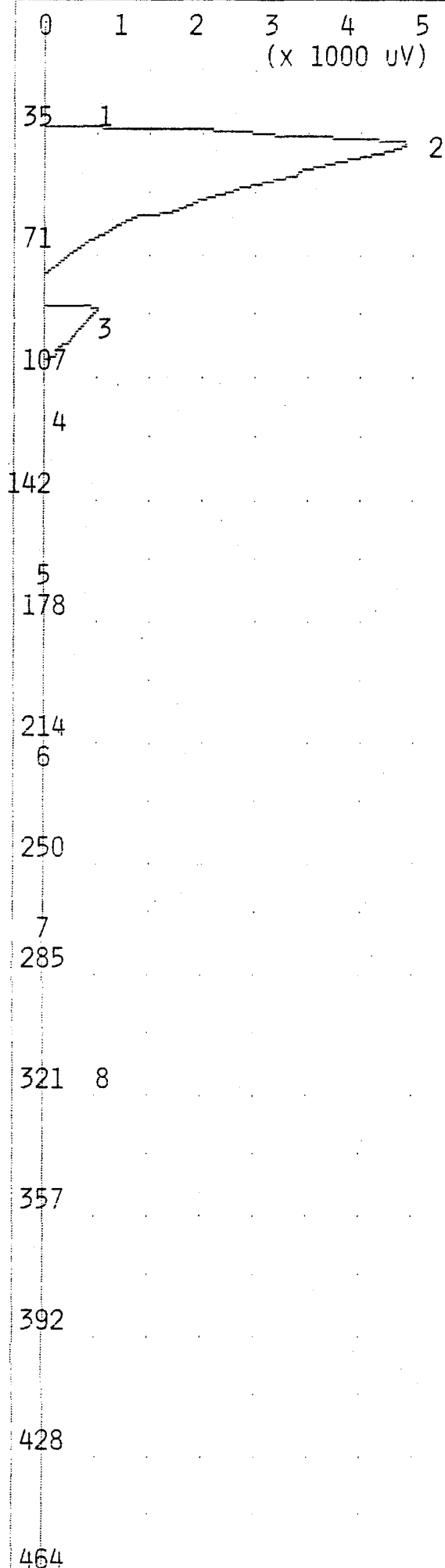
JOE BYRD, JR.

DULUTH ANGB

017-023BH

0.5- 2.5 10G

LH



TIME PRINTED: MAY 17,95 17:21

SAMPLE TIME: MAY 17,95 17:13

METHOD

SLOPE UP 0.500 MV/SEC
SLOPE DOWN 1.500 MV/SEC
MIN AREA 0.000 MVSEC
MIN HEIGHT 0.000 MV
ANALYSIS DELAY 0.0 SEC
WINDOW PERCENT 10.0 %
DET FLOW 12 ML/MIN
B/F FLOW 12 ML/MIN
AUX FLOW 0 ML/MIN
OVEN TEMP 40 C
AMB TEMP 32 C
MAX GAIN 1000
ANALYSIS TIME 500.0 SEC

PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.098 MVS | 28.9 |
| 2 | UNKNOWN | 131.8 MVS | 36.2 |
| 3 | BENZENE | 10.34 PPB | 85.0 |
| 4 | UNKNOWN | 2.628 MVS | 114.0 |
| 5 | TOLUENE | 3.128 PPB | 159.2 |
| 6 | UNKNOWN | 0.453 MVS | 212.4 |
| 7 | ETHYLBENZENE | 37.21 PPB | 262.4 |
| 8 | M,P-XYLENE | 97.54 PPB | 310.4 |

NOTES

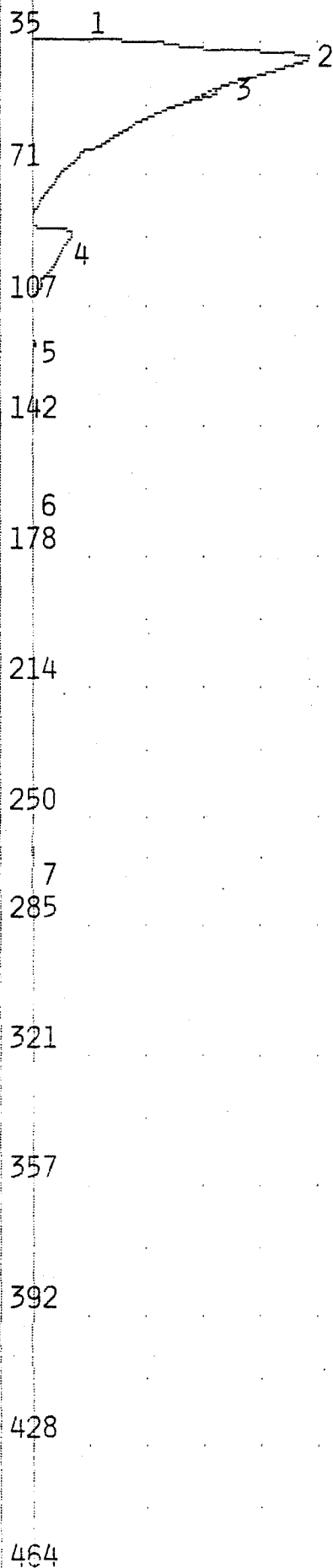
JOE BYRD, JR.

DULUTH ANGB

017-023BH

4.0- 6.0 10G

0 2 4 6 8 10
(x 1000 uV)



TIME PRINTED: MAY 17,95 17:33

SAMPLE TIME: MAY 17,95 17:24

METHOD

SLOPE UP 0.500 MV/SEC
SLOPE DOWN 1.500 MV/SEC
MIN AREA 0.000 MVSEC
MIN HEIGHT 0.000 MV
ANALYSIS DELAY 0.0 SEC
WINDOW PERCENT 10.0 %
DET FLOW 12 ML/MIN
B/F FLOW 12 ML/MIN
AUX FLOW 0 ML/MIN
OVEN TEMP 40 C
AMB TEMP 32 C
MAX GAIN 1000
ANALYSIS TIME 500.0 SEC

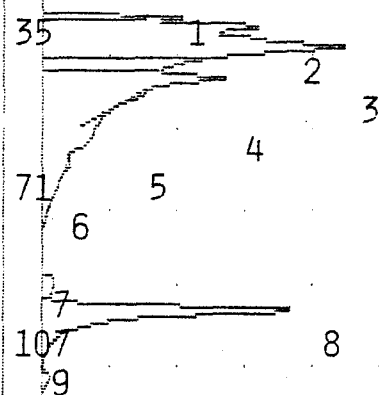
PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.120 MVS | 29.4 |
| 2 | UNKNOWN | 172.2 MVS | 37.7 |
| 3 | UNKNOWN | 0.520 MVS | 47.0 |
| 4 | BENZENE | 12.89 PPB | 85.4 |
| 5 | UNKNOWN | 3.923 MVS | 115.0 |
| 6 | TOLUENE | 3.273 PPB | 161.0 |
| 7 | ETHYLBENZENE | 4.339 PPB | 263.7 |

NOTES

JOE BYRD, JR.
DULUTH ANGB
017-028BH
0.5- 2.5 10G

ANALYSIS #38 10S+ GC FUNCTION ANALYSIS REPORT

0 4 8 12 16 20
(x 1000 UV)

TIME PRINTED: MAY 17,95 17:44

SAMPLE TIME: MAY 17,95 17:36

METHOD

| | | |
|----------------|-------|--------|
| SLOPE UP | 0.500 | MV/SEC |
| SLOPE DOWN | 1.500 | MV/SEC |
| MIN AREA | 0.000 | MVSEC |
| MIN HEIGHT | 0.000 | MV |
| ANALYSIS DELAY | 0.0 | SEC |
| WINDOW PERCENT | 10.0 | % |
| DET FLOW | 12 | ML/MIN |
| B/F FLOW | 12 | ML/MIN |
| AUX FLOW | 0 | ML/MIN |
| OVEN TEMP | 40 | C |
| AMB TEMP | 32 | C |
| MAX GAIN | 1000 | |
| ANALYSIS TIME | 500.0 | SEC |

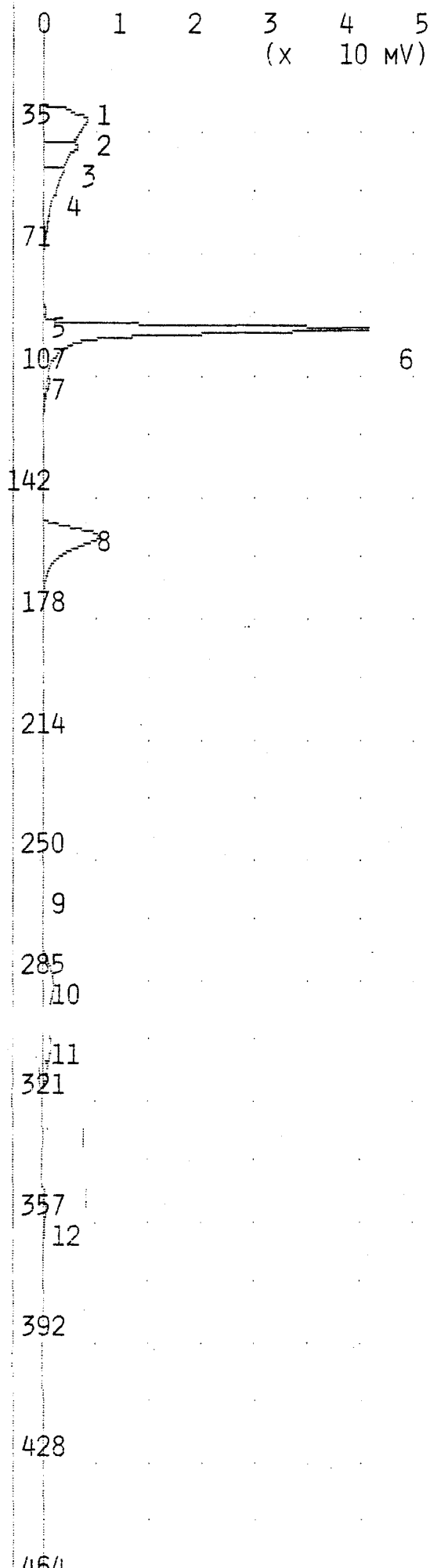
PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 10.19 MVS | 24.6 |
| 2 | UNKNOWN | 23.77 MVS | 26.6 |
| 3 | UNKNOWN | 82.20 MVS | 31.6 |
| 4 | UNKNOWN | 98.74 MVS | 38.9 |
| 5 | UNKNOWN | 0.429 MVS | 42.6 |
| 6 | UNKNOWN | 0.204 MVS | 58.3 |
| 7 | BENZENE | 2.644 PPB | 85.4 |
| 8 | UNKNOWN | 47.38 MVS | 92.0 |
| 9 | UNKNOWN | 1.336 MVS | 107.4 |
| 10 | ETHYLBENZENE | 5.443 PPB | 261.8 |

NOTES

JOE BYRD, JR.
DULUTH ANGB
017-028BH
4.0- 6.0 6G

ANALYSIS #39 10S+ GC FUNCTION ANALYSIS REPORT



TIME PRINTED: MAY 17,95 17:56

SAMPLE TIME: MAY 17,95 17:48

METHOD

SLOPE UP 0.500 MV/SEC

SLOPE DOWN 1.500 MV/SEC

MIN AREA 0.000 MVSEC

MIN HEIGHT 0.000 MV

ANALYSIS DELAY 0.0 SEC

WINDOW PERCENT 10.0 %

DET FLOW 12 ML/MIN

B/F FLOW 12 ML/MIN

AUX FLOW 0 ML/MIN

OVEN TEMP 40 C

AMB TEMP 32 C

MAX GAIN 1000

ANALYSIS TIME 500.0 SEC

PEAK REPORT

| PK | COMPOUND NAME | AREA/CONC | R.T. |
|----|---------------|-----------|-------|
| 1 | UNKNOWN | 0.069 MVS | 23.1 |
| 2 | UNKNOWN | 59.62 MVS | 29.6 |
| 3 | UNKNOWN | 32.97 MVS | 37.6 |
| 4 | UNKNOWN | 48.87 MVS | 44.8 |
| 5 | BENZENE | 1.894 PPB | 85.4 |
| 6 | UNKNOWN | 172.4 MVS | 90.9 |
| 7 | UNKNOWN | 0.789 MVS | 106.0 |
| 8 | TOLUENE | 90.99 PPB | 151.8 |
| 9 | UNKNOWN | 2.160 MVS | 256.8 |
| 10 | ETHYLBENZENE | 95.85 PPB | 284.0 |
| 11 | M,P-XYLENE | 137.7 PPB | 303.4 |
| 12 | O-XYLENE | 31.27 PPB | 352.6 |

NOTES

JOE BYRD, JR.
DULUTH ANGB
100 PPB BTX

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APPENDIX H
INSPECTION DERIVED WASTE MANAGEMENT

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SECTION H.1

INTRODUCTION

This appendix concerns the contents of the twenty-nine drums of the Facility Investigation (FI) derived waste which was generated during the recent RCRA Facility Investigation at the 148th Fighter Group, Minnesota ANG, Duluth, Minnesota. Twenty-one of these drums contain soil cuttings, two contain composite soil, two contain decontamination water, and six contain monitor well development and purge water. The attached Table H.1 is a summary of the recommended disposition for each of these drums. The attached Table H.2 is a summary of the maximum concentrations of analytes contained in each drum.

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INVESTIGATION DERIVED WASTE LOG

| Drum | Contents (Water/Soil Cuttings/Borehole/MW/Decon) | % Full |
|-------------------------------------|---|--------|
| 017- 019 BH | Drill Cuttings - Soil 7/20/94 | ~20 |
| 017 017- 020 BH | Drill Cuttings - Soil 7/20/94 | ~15 |
| 017-013BH 017-012BH 017-014BH | Drill Cuttings - Soil 7/18/94 - 7/19/94 | ~35 |
| 017-015BH | Drill Cuttings - Soil 7/18/94 | ~15 |
| 017- 016BH | Drill Cuttings - Soil 7/18/94 | ~15 |
| 017- 011BH | Drill Cuttings - Soil 7/19/94 | ~20 |
| 017- 010BH | Drill Cuttings - Soil 7/19/94 | ~15 |
| 017- Composite Soil | Composite Soil 7/18/94 - 7/20/94 | 40 |
| 017- Decon Water | Decon. Water 7/18/94 - 7/20/94 | 100 |
| 017- 018 BH 017-017BH | Drill Cuttings - Soil 7/19/94 - 7/20/94 | ~30 |

Location of Drums: on Pool at Site 17

Date Stored: 7/20/94

Site Manager: Kathryn Pritchett

INVESTIGATION DERIVED WASTE LOG

| Drum | Contents (Water/Soil Cuttings/Borehole/MW/Decon) | % Full |
|----------------|---|----------|
| 017 - 009mw | Purge water 2/28/92 | ~50 ? |
| | | |
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Location of Drums: On Pad at Site 17

Date Stored: 7/28/94

Site Manager: Kathryn Patterson

INVESTIGATION DERIVED WASTE LOG

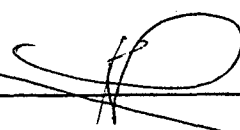
| Drum | Contents (Water/Soil Cuttings/Borehole/MW/Decon) | % Full |
|---------------------------|---|---------------------|
| 021- 018 BH | Drill Cuttings - Soil 7/14/94 | 50 |
| 021-026 mw | Drill Cuttings - Soil 7/15/94 | 75 90 |
| 021- 021 BH | Drill Cuttings - Soil 7/13/94 | 30 |
| 021- 019 BH | Drill Cuttings - Soil 7/14/94 | 75 |
| 021- Decon. water | Decon. water 7/12/94 - 7/15/94 | 100 |
| 021- Composite Soil | Composite Soil 7/12/94 - 7/15/94 | 30 |
| 021- 015 BH | Drill Cuttings - Soil 7/14/94 | 30 |
| 021- 009 mw | Purge water ~ 8 gallons 7/22/94 | 15 |
| 021- 010 mw | Purge water ~ 12 gallons 7/22/94 | 22 |
| 021- 026 mw | Purge water ~ 50 gallons 7/22/94 | 91 |

Location of Drums: South of Building 240

Date Stored: 7/21/94 and 7/26/94

Site Manager: Kathryn Peterson

INVESTIGATION DERIVED WASTE LOG

| Drum | Contents (Water/Soil Cuttings/Borehole/MW/Decon) | % Full |
|---|---|--------|
| 021- 026mw | Development water & some Purge water 7/1/94 ~40 gallons 7/22/94 | 73 |
| 021- 014mw | Purge water 7/22/94 ~20 gallons | 36 |
| 021- 016BH | Drill Cuttings - Soil 7/14/94 | 30 |
| 021- 025BH | Drill Cuttings - Soil 7/12/94 | 30 |
| 021- 024BH - 021-023BH | Drill Cuttings - Soil 7/12/94 | 70 |
| 021- 022BH | Drill Cuttings - Soil 7/13/94 | 50 |
| 021- 017BH | Drill Cuttings - Soil 7/15/94 | 30 |
| 021- 020BH | Drill Cuttings - Soil 7/13/94 | 50 |
|  | | |
| | | |

Location of Drums: South of Building 240

Date Stored: 7/21/94 and 7/26/94

Site Manager: Kathryn Pittnett

Table H.1
Recommended Disposition of Inspection Derived Waste
Minnesota Air National Guard Base
Duluth, Minnesota

| Drum Identification | Origin | Recommended Disposition | Rationale |
|----------------------------|--|--|--|
| 021-018BH | Drill Cuttings Soil 7/14/94 | Dispose of in a landfill which accepts TPH contaminated soil or send to a soil recycler. | Analytical results show TPH exceeds the State action level. |
| 021-026MW | Drill Cuttings Soil 7/15/94 | Dispose of in a landfill which accepts TPH contaminated soil or send to a soil recycler. | Analytical results show TPH exceeds the State action level. |
| 021-021BH | Drill Cuttings Soil 7/13/94 | Dispose of in a landfill which accepts Benzene contaminated soil or send to a soil recycler. | Analytical results show Benzene significantly exceeds the State action level. |
| 021-019BH | Drill Cuttings Soil 7/14/94 | Dispose of in a landfill which accepts Benzene contaminated soil or send to a soil recycler. | Analytical results show Benzene significantly exceeds the State action level. |
| 021-Decontamination Water | Decontamination Water 07/12/94 - 07/15/94 | Determine whether City of Duluth Wastewater Management will allow Benzene, TPH, Trichloroethane and Nickel contaminated water to be disposed of in the sewer system. | Potential contaminants contacted sampling equipment; Benzene, TPH, Trichloroethane and Nickel are the only contaminants which significantly exceeded State action levels. |
| 021-Composite Soil | Composite Soil 07/12/94 - 07/15/94 | Dispose of in a landfill which accepts Benzene contaminated soil or send to a soil recycler. | Analytical results show Benzene significantly exceeds the State action level. |
| 021-015BH | Drill Cuttings Soil 7/14/94 | Dispose as a solid waste. | No analytes exceeded TCLP regulatory limits. * Concentrations of analytes for which TCLP regulatory levels do not exist were equal to or less than site-specific background concentrations. |

BH - Borehole
ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

ug/L - micrograms per liter
mg/L - milligrams per liter

Table H.1 (Continued)
Recommended Disposition of Inspection Derived Waste
Minnesota Air National Guard Base
Duluth, Minnesota

| Drum Identification | Origin | Recommended Disposition | Rationale |
|----------------------------|---|---|--|
| 021-009MW | Purge Water ~ 8 gallons 7/22/94 | Determine whether City of Duluth Wastewater Management will allow metal contaminated water to be disposed of in the sewer system. | Analytical results show Nickel exceeds Federal and State action levels. |
| 021-010MW | Purge Water ~ 12 gallons 7/22/94 | Determine whether City of Duluth Wastewater Management will allow metal contaminated water to be disposed of in the sewer system. | Analytical results show Nickel exceeds Federal and State action levels. |
| 021-026MW | Purge Water ~ 50 gallons 7/22/94 | Determine whether City of Duluth Wastewater Management will allow metal contaminated water to be disposed of in the sewer system. | Analytical results show Nickel exceeds Federal and State action levels. |
| 021-026MW | Development Water & Some Purge Water ~ 40 gallons 7/22/94 | Determine whether City of Duluth Wastewater Management will allow metal contaminated water to be disposed of in the sewer system. | Analytical results show Nickel exceeds Federal and State action levels. |
| 021-014MW | Purge Water ~ 20 gallons 7/22/94 | Determine whether City of Duluth Wastewater Management will allow Trichloroethane contaminated water to be disposed of in the sewer system. | Analytical results show Trichloroethane exceeds Federal and State action levels. |

BH - Borehole

ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

ug/L - micrograms per liter
mg/L - milligrams per liter

Table H.1 (Continued)
Recommended Disposition of Inspection Derived Waste
Minnesota Air National Guard Base
Duluth, Minnesota

| Drum Identification | Origin | Recommended Disposition | Rationale |
|-------------------------------------|---|--|--|
| 021-016BH | Drill Cuttings Soil 7/14/94 | Dispose of in a landfill which accepts Nickel and Lead contaminated soil or send to a soil recycler. | Analytical results show Nickel and Lead exceed the State action levels. |
| 021-025BH | Drill Cuttings Soil 7/12/94 | Dispose of in a landfill which accepts Nickel contaminated soil or send to a soil recycler. | Analytical results show Nickel significantly exceeds the State action level. |
| 021-024BH & 021-023BH | Drill Cuttings Soil 7/12/94 | Dispose of in a landfill which accepts Benzene and TPH contaminated soil or send to a soil recycler. | Analytical results show Benzene and TPH significantly exceed Federal and State action level. |
| 021-022BH | Drill Cuttings Soil 7/13/94 | Dispose of in a landfill which accepts Benzene contaminated soil or send to a soil recycler. | Analytical results show Benzene exceeds the State action level. |
| 021-017BH | Drill Cuttings Soil 7/15/94 | Dispose of in a landfill which accepts Nickel contaminated soil or send to a soil recycler. | Analytical results show Nickel significantly exceeds the State action level. |
| 021-020BH | Drill Cuttings Soil 7/13/94 | Dispose of in a landfill which accepts Benzene contaminated soil or send to a soil recycler. | Analytical results show Benzene exceeds the Federal and State action levels. |
| 017-019BH | Drill Cuttings Soil 7/20/94 | Dispose of in a landfill which accepts TPH contaminated soil or send to a soil recycler. | Analytical results show TPH exceeds the State action level. |
| 017-020BH | Drill Cuttings Soil 7/20/94 | Dispose of in a landfill which accepts TPH contaminated soil or send to a soil recycler. | Analytical results show TPH exceeds the State action level. |
| 017-013BH 017-012BH 017-014BH | Drill Cuttings Soil 7/18/94 - 7/19/94 | Dispose of in a landfill which accepts TPH contaminated soil or send to a soil recycler. | Analytical results show TPH significantly exceeds the State action level. |

BH - Borehole
ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

ug/L - micrograms per liter
mg/L - milligrams per liter

Table H.1 (Concluded)
Recommended Disposition of Inspection Derived Waste
Minnesota Air National Guard Base
Duluth, Minnesota

| Drum Identification | Origin | Recommended Disposition | Rationale |
|----------------------------|---|---|---|
| 017-015BH | Drill Cuttings Soil 7/18/94 | Dispose of in a landfill which accepts TPH contaminated soil or send to a soil recycler. | Analytical results show TPH significantly exceeds the State action level. |
| 017-016BH | Drill Cuttings Soil 7/18/94 | Dispose of in a landfill which accepts TPH contaminated soil or send to a soil recycler. | Analytical results show TPH significantly exceeds the State action level. |
| 017-011BH | Drill Cuttings Soil 7/29/94 | Dispose of in a landfill which accepts TPH contaminated soil or send to a soil recycler. | Analytical results show TPH significantly exceeds the State action level. |
| 017-010BH | Drill Cuttings Soil 7/19/94 | Dispose of in a landfill which accepts TPH contaminated soil or send to a soil recycler. | Analytical results show TPH significantly exceeds the State action level. |
| 017-Composite Soil | Composite Soil | Dispose of in a landfill which accepts TPH contaminated soil or send to a soil recycler. | Analytical results show TPH significantly exceeds the State action level. |
| 017-Decontamination Water | Decontamination Water 7/18/94 - 7/20/94 | Determine whether City of Duluth Wastewater Management will allow TPH contaminated water to be disposed of in the sewer system. | Potential contaminants contacted sampling equipment; TPH is the only contaminant which significantly exceeds State action levels. |
| 017-018BH 017-017BH | Drill Cuttings Soil 7/19/94 - 7/20/94 | Dispose of in a landfill which accepts TPH contaminated soil or send to a soil recycler. | Analytical results show TPH significantly exceeds the State action level. |
| 017-009MW | Purge Water 2/28/92 | Determine whether City of Duluth Wastewater Management will allow TPH contaminated water to be disposed of in the sewer system. | Potential contaminants contacted sampling equipment; TPH is the only contaminant which significantly exceeds State action levels. |

BH - Borehole

ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

ug/L - micrograms per liter
mg/L - milligrams per liter

Table H.2

**Site Inspection Derived Waste - Drum Containing Soil Cuttings from 017-Composite Soil
148th FG, Duluth Air National Guard Base
Duluth, Minnesota**

| Analyte | Maximum Concentration in Soil Cuttings | Action Level Concentration mg/kg | Standard Used |
|----------------------------|---|-------------------------------------|------------------|
| SVOC | | | |
| Acenaphthene | 1,000 ug/kg | NA | - |
| Benzo(a)Anthracene | 2,800 ug/kg | NA | - |
| Benzo(b)Fluoranthene | 420 ug/kg | NA | - |
| Benzo(k)Fluoranthene | 2,900 ug/kg | NA | - |
| Benzo(a)Pyrene | 3,100 ug/kg | NA | - |
| Benzo(g,h,i)Perylene | 2,000 ug/kg | NA | - |
| di-n-Butyl phthalate | 430 ug/kg | NA | - |
| Carbazole | 870 ug/kg | NA | - |
| Chrysene | 3,600 ug/kg | NA | - |
| Dibenzofuran | 450 ug/kg | NA | - |
| bis(2-Ethylhexyl)Phthalate | 820 ug/kg | NA | - |
| Fluoranthene | 5,800 ug/kg | NA | - |
| Indeno(1,2,3-cd)Pyrene | 1,800 ug/kg | NA | - |
| Naphthalene | 400 ug/kg | NA | - |
| Phenanthrene | 4,900 ug/kg | NA | - |
| Pyrene | 4,900 ug/kg | NA | - |
| TPH | | | |
| TPH | 7,700 mg/kg | NA | - |

BH - Borehole

 ug/kg - micrograms per kilogram
 mg/kg - milligrams per kilogram

 ug/L - micrograms per liter
 mg/L - milligrams per liter

Table H.3
Site Inspection Derived Waste - Drum Containing Soil Cuttings from 017-010BH
148th FG, Duluth Air National Guard Base
Duluth, Minnesota

| Analyte | Maximum Concentration in Soil Cuttings | Action Level Concentration mg/kg | Standard Used |
|---------|---|-------------------------------------|------------------|
| TPH | 180 mg/kg | NA | - |

BH - Borehole

ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

ug/L - micrograms per liter
mg/L - milligrams per liter

Table H.4

Site Inspection Derived Waste - Drum Containing Soil Cuttings from 017-011BH
 148th FG, Duluth Air National Guard Base
 Duluth, Minnesota

| Analyte | Maximum Concentration in Soil Cuttings | Action Level Concentration mg/kg | Standard Used |
|------------------------|---|-------------------------------------|------------------|
| SVOC | | | |
| Acenaphthene | 1,000 ug/kg | NA | - |
| Benzo(a)Anthracene | 2,800 ug/kg | NA | - |
| Benzo(k)Fluoranthene | 2,900 ug/kg | NA | - |
| Benzo(a)Pyrene | 3,100 ug/kg | NA | - |
| Benzo(g,h,i)Perylene | 2,000 ug/kg | NA | - |
| Carbazole | 870 ug/kg | NA | - |
| Chrysene | 3,600 ug/kg | NA | - |
| Dibenzofuran | 450 ug/kg | NA | - |
| Fluoranthene | 5,800 ug/kg | NA | - |
| Indeno(1,2,3-cd)Pyrene | 1,800 ug/kg | NA | - |
| Naphthalene | 400 ug/kg | NA | - |
| Phenanthrene | 4,900 ug/kg | NA | - |
| Pyrene | 4,900 ug/kg | NA | - |
| TPH | | | |
| TPH | 180 mg/kg | NA | - |

BH - Borehole

ug/kg - micrograms per kilogram

mg/kg - milligrams per kilogram

ug/L - micrograms per liter

mg/L - milligrams per liter

Table H.5
 Site Inspection Derived Waste - Drum Containing Soil Cuttings from 017-012BH, 017-013BH, & 017-014BH
 148th FG, Duluth Air National Guard Base
 Duluth, Minnesota

| Analyte | Maximum Concentration in Soil Cuttings | Action Level Concentration mg/kg | Standard Used |
|----------------------|---|-------------------------------------|------------------|
| SVOC | | | |
| Benzo(b)Fluoranthene | 420 ug/kg | NA | - |
| di-n-Butyl phthalate | 430 ug/kg | NA | - |
| Chrysene | 370 ug/kg | NA | - |
| Fluoranthene | 590 ug/kg | NA | - |
| Phenanthrene | 390 ug/kg | NA | - |
| Pyrene | 640 ug/kg | NA | - |
| TPH | | | |
| TPH | 3,600 mg/kg | NA | - |

BH - Borehole
 ug/kg - micrograms per kilogram
 mg/kg - milligrams per kilogram

ug/L - micrograms per liter
 mg/L - milligrams per liter

Table H.6
Site Inspection Derived Waste - Drum Containing Soil Cuttings from 017-015BH
148th FG, Duluth Air National Guard Base
Duluth, Minnesota

| Analyte | Maximum Concentration in Soil Cuttings | Action Level Concentration mg/kg | Standard Used |
|---------|---|-------------------------------------|------------------|
| TPH | 300 mg/kg | NA | - |

BH - Borehole
 ug/kg - micrograms per kilogram
 mg/kg - milligrams per kilogram

ug/L - micrograms per liter
 mg/L - milligrams per liter

Table H.7
Site Inspection Derived Waste - Drum Containing Soil Cuttings from 017-016BH
148th FG, Duluth Air National Guard Base
Duluth, Minnesota

| Analyte | Maximum Concentration in Soil Cuttings | Action Level Concentration mg/kg | Standard Used |
|---------|---|-------------------------------------|------------------|
| TPH | 7,700 mg/kg | NA | - |

BH - Borehole
 ug/kg - micrograms per kilogram
 mg/kg - milligrams per kilogram

ug/L - micrograms per liter
 mg/L - milligrams per liter

Table H.8

Site Inspection Derived Waste - Drum Containing Soil Cuttings from 017-017BH & 017-018BH
 148th FG, Duluth Air National Guard Base
 Duluth, Minnesota

| Analyte | Maximum Concentration in Soil Cuttings | Action Level Concentration mg/kg | Standard Used |
|----------------------------|---|-------------------------------------|------------------|
| SVOC | | | |
| bis(2-Ethylhexyl)Phthalate | 820 ug/kg | NA | - |
| Fluoranthene | 600 ug/kg | NA | - |
| Phenanthrene | 470 ug/kg | NA | - |
| Pyrene | 460 ug/kg | NA | - |
| TPH | | | |
| TPH | 260 mg/kg | NA | - |

BH - Borehole

 ug/kg - micrograms per kilogram
 mg/kg - milligrams per kilogram

 ug/L - micrograms per liter
 mg/L - milligrams per liter

Table H.9
Site Inspection Derived Waste - Drum Containing Soil Cuttings from 017-019BH
148th FG, Duluth Air National Guard Base
Duluth, Minnesota

| Analyte | Maximum Concentration in Soil Cuttings | Action Level Concentration mg/kg | Standard Used |
|---------|---|-------------------------------------|------------------|
| TPH | 99 mg/kg | NA | - |

BH - Borehole
 ug/kg - micrograms per kilogram
 mg/kg - milligrams per kilogram

ug/L - micrograms per liter
 mg/L - milligrams per liter

Table H.10
 Site Inspection Derived Waste - Drum Containing Soil Cuttings from 017-020BH
 148th FG, Duluth Air National Guard Base
 Duluth, Minnesota

| Analyte | Maximum Concentration in Soil Cuttings | Action Level Concentration mg/kg | Standard Used |
|---------|---|-------------------------------------|------------------|
| TPH | 110 mg/kg | NA | |

BH - Borehole
 ug/kg - micrograms per kilogram
 mg/kg - milligrams per kilogram

ug/L - micrograms per liter
 mg/L - milligrams per liter

Table H.11
Site Inspection Derived Waste - Drum Containing Soil Cuttings from 021-Composite Soil
148th FG, Duluth Air National Guard Base
Duluth, Minnesota

| Analyte | Maximum Concentration in Soil Cuttings | Action Level Concentration mg/kg | Standard Used |
|------------------------|---|-------------------------------------|------------------|
| VOC | | | |
| Acetone | 85 ug/kg | NA | - |
| Benzene | 1,100 ug/kg | 10 | TCLP |
| 2-Butanone | 31 ug/kg | NA | - |
| 1,2-Dichloroethane | 52 ug/kg | 10 | TCLP |
| Ethylbenzene | 130 ug/kg | NA | - |
| Toluene | 500 ug/kg | NA | - |
| Xylenes (total) | 740 ug/kg | NA | - |
| SVOC | | | |
| Acenaphthene | 1,000 ug/kg | NA | - |
| Anthracene | 1,900 ug/kg | NA | - |
| Benzo(a)Anthracene | 6,400 ug/kg | NA | - |
| Benzo(b)Fluoranthene | 9,300 ug/kg | NA | - |
| Benzo(k)Fluoranthene | 4,800 ug/kg | NA | - |
| Benzo(a)Pyrene | 5,500 ug/kg | NA | - |
| Benzo(g,h,i)Perylene | 3,500 ug/kg | NA | - |
| Carbazole | 1,500 ug/kg | NA | - |
| Chrysene | 7,000 ug/kg | NA | - |
| Fluoranthene | 14,000 ug/kg | NA | - |
| Fluorene | 920 ug/kg | NA | - |
| Indeno(1,2,3-cd)Pyrene | 3,900 ug/kg | NA | - |
| Phenanthrene | 8,800 ug/kg | NA | - |
| Pyrene | 12,000 ug/kg | NA | - |
| TPH | | | |
| TPH | 250 mg/kg | NA | - |
| Pesticides | | | |
| Aldrin | 1.3 ug/kg | NA | - |
| Chlordane(technical) | 47 ug/kg | 0.6 | TCLP 20 |
| Metal | | | |
| Aluminum | 17,800 mg/kg | NA | - |
| Arsenic | 2 mg/kg | 100 | TCLP 20 |
| Beryllium | 1.0 mg/kg | NA | - |
| Cadmium | 0.8 mg/kg | 20 | TCLP 20 |
| Chromium | 29 mg/kg | 100 | TCLP 20 |
| Copper | 92.6 mg/kg | NA | - |
| Nickel | 31 mg/kg | NA | - |
| Lead | 20 mg/kg | 100 | TCLP 20 |
| Zinc | 71 mg/kg | NA | - |

BH - Borehole
ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

ug/L - micrograms per liter
mg/L - milligrams per liter

Table H.12

Site Inspection Derived Waste - Drum Containing Purge Water from 021-009MW
 148th FG, Duluth Air National Guard Base
 Duluth, Minnesota

| Analyte | Maximum Concentration in Purge Water | Action Level Concentration mg/L | Standard Used |
|----------|---|------------------------------------|------------------|
| Metal | | | |
| Aluminum | 1.06 mg/L | NA | - |
| Cadmium | 0.0002 mg/L | 1.0 | TCLP |
| Chromium | 0.024 mg/L | 1.5 | TCLP |
| Copper | 0.02 mg/L | NA | - |
| Nickel | 0.62 mg/L | NA | - |
| Zinc | 0.03 mg/L | NA | - |

BH - Borehole

ug/kg - micrograms per kilogram
 mg/kg - milligrams per kilogram

ug/L - micrograms per liter
 mg/L - milligrams per liter

Table H.13
 Site Inspection Derived Waste - Drum Containing Purge Water from 021-010MW
 148th FG, Duluth Air National Guard Base
 Duluth, Minnesota

| Analyte | Maximum Concentration in Purge Water | Action Level Concentration mg/L | Standard Used |
|--------------|---|------------------------------------|------------------|
| Metal | | | |
| Aluminum | 3.00 mg/L | NA | - |
| Cadmium | 0.0002 mg/L | 1.0 | TCLP |
| Chromium | 0.004 mg/L | 1.5 | TCLP |
| Copper | 0.02 mg/L | NA | - |
| Nickel | 0.012 mg/L | NA | - |
| Zinc | 0.02 mg/L | NA | - |

BH - Borehole
 ug/kg - micrograms per kilogram
 mg/kg - milligrams per kilogram

ug/L - micrograms per liter
 mg/L - milligrams per liter

Table H.14

Site Inspection Derived Waste - Drum Containing Purge Water from 021-014MW
148th FG, Duluth Air National Guard Base
Duluth, Minnesota

| Analyte | Maximum Concentration in Soil Cuttings | Action Level Concentration mg/L | Standard Used |
|-----------------|---|------------------------------------|------------------|
| SVOC | | | |
| Trichloroethane | 68 ug/L | 0.5 | TCLP |
| Metal | | | |
| Aluminum | 17.1 mg/L | NA | - |
| Cadmium | 0.0003 mg/L | 1.0 | TCLP |
| Chromium | 0.025 mg/L | 5.0 | TCLP |
| Copper | 0.17 mg/L | NA | - |
| Nickel | 0.051 mg/L | NA | - |
| Zinc | 0.07 mg/L | NA | - |

BH - Borehole

ug/kg - micrograms per kilogram

mg/kg - milligrams per kilogram

ug/L - micrograms per liter

mg/L - milligrams per liter

Table H.15
 Site Inspection Derived Waste - Drum Containing Soil Cuttings from 021-015BH
 148th FG, Duluth Air National Guard Base
 Duluth, Minnesota

| Analyte | Maximum Concentration in Soil Cuttings | Action Level Concentration mg/kg | Standard Used |
|----------|---|-------------------------------------|------------------|
| TPH | | | |
| TPH | 16 mg/kg | NA | - |
| Metal | | | |
| Aluminum | 14,400 mg/kg | NA | - |
| Arsenic | 2 mg/kg | 100 | TCLP 20 |
| Chromium | 29 mg/kg | 100 | TCLP 20 |
| Copper | 55.2 mg/kg | NA | - |
| Nickel | 27 mg/kg | NA | - |
| Lead | 4.3 mg/kg | 100 | TCLP 20 |
| Zinc | 52 mg/kg | NA | - |

BH - Borehole
 ug/kg - micrograms per kilogram
 mg/kg - milligrams per kilogram

ug/L - micrograms per liter
 mg/L - milligrams per liter

Table H.16

Site Inspection Derived Waste - Drum Containing Soil Cuttings from 021-016BH
148th FG, Duluth Air National Guard Base
Duluth, Minnesota

| Analyte | Maximum Concentration in Soil Cuttings | Action Level Concentration mg/kg | Standard Used |
|--------------|---|-------------------------------------|------------------|
| VOC | | | |
| Acetone | 13 ug/kg | NA | - |
| TPH | | | |
| TPH | 67 mg/kg | NA | - |
| Metal | | | |
| Aluminum | 10,500 mg/kg | NA | - |
| Cadmium | 2 mg/kg | 100 | TCLP 20 |
| Chromium | 26 mg/kg | 100 | TCLP 20 |
| Copper | 50.2 mg/kg | NA | - |
| Nickel | 25 mg/kg | NA | - |
| Lead | 6.9 mg/kg | 100 | TCLP 20 |
| Zinc | 56 mg/kg | NA | - |

BTI - Borehole

ug/kg - micrograms per kilogram
 mg/kg - milligrams per kilogram

ug/L - micrograms per liter
 mg/L - milligrams per liter

Table H.17

Site Inspection Derived Waste - Drum Containing Soil Cuttings from 021-017BH
148th FG, Duluth Air National Guard Base
Duluth, Minnesota

| Analyte | Maximum Concentration in Soil Cuttings | Action Level Concentration mg/kg | Standard Used |
|----------|---|-------------------------------------|------------------|
| TPH | 86 mg/kg | NA | - |
| Metal | | | |
| Aluminum | 11,400 mg/kg | NA | - |
| Arsenic | 1 mg/kg | 100 | TCLP 20 |
| Chromium | 21 mg/kg | 100 | TCLP 20 |
| Copper | 64.6 mg/kg | NA | - |
| Nickel | 25 mg/kg | NA | - |
| Lead | 3.9 mg/kg | 100 | TCLP 20 |
| Zinc | 47 mg/kg | NA | - |

BH - Borehole

ug/kg - micrograms per kilogram

mg/kg - milligrams per kilogram

ug/L - micrograms per liter

mg/L - milligrams per liter

Table H.18
Site Inspection Derived Waste - Drum Containing Soil Cuttings from 021-018BH
148th FG, Duluth Air National Guard Base
Duluth, Minnesota

| Analyte | Maximum Concentration in Soil Cuttings | Action Level Concentration mg/kg | Standard Used |
|------------------------|---|-------------------------------------|------------------|
| SVOC | | | |
| Acenaphthene | 1,000 ug/kg | NA | - |
| Anthracene | 1,900 ug/kg | NA | - |
| Benzo(a)Anthracene | 6,400 ug/kg | NA | - |
| Benzo(b)Fluoranthene | 9,300 ug/kg | NA | - |
| Benzo(k)Fluoranthene | 4,800 ug/kg | NA | - |
| Benzo(a)Pyrene | 5,500 ug/kg | NA | - |
| Benzo(g,h,i)Perylene | 3,500 ug/kg | NA | - |
| Carbazole | 1,500 ug/kg | NA | - |
| Chrysene | 7,000 ug/kg | NA | - |
| Fluoranthene | 14,000 ug/kg | NA | - |
| Fluorene | 920 ug/kg | NA | - |
| Indeno(1,2,3-cd)Pyrene | 3,900 ug/kg | NA | - |
| Phenanthrene | 8,800 ug/kg | NA | - |
| Pyrene | 12,000 ug/kg | NA | - |
| TPH | | | |
| TPH | 125 mg/kg | NA | - |
| Metal | | | |
| Aluminum | 11,000 mg/kg | NA | - |
| Arsenic | 1 mg/kg | 100 | TCLP 20 |
| Chromium | 29 mg/kg | 100 | TCLP 20 |
| Copper | 77.9 mg/kg | NA | - |
| Nickel | 27 mg/kg | NA | - |
| Lead | 16 mg/kg | 100 | TCLP 20 |
| Zinc | 55 mg/kg | NA | - |

BH - Borehole
ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

ug/L - micrograms per liter
mg/L - milligrams per liter

Table H.19
 Site Inspection Derived Waste - Drum Containing Soil Cuttings from 021-019BH
 148th FG, Duluth Air National Guard Base
 Duluth, Minnesota

| Analyte | Maximum Concentration in Soil Cuttings | Action Level Concentration mg/kg | Standard Used |
|--------------|---|-------------------------------------|------------------|
| VOC | | | |
| Benzene | 17 ug/kg | 10 | TCLP 20 |
| TPH | | | |
| TPH | 30 mg/kg | NA | - |
| Metal | | | |
| Aluminum | 12,600 mg/kg | NA | - |
| Arsenic | 1 mg/kg | 100 | TCLP 20 |
| Chromium | 24 mg/kg | 100 | TCLP 20 |
| Copper | 56.5 mg/kg | NA | - |
| Nickel | 25 mg/kg | NA | - |
| Lead | 4.0 mg/kg | 100 | TCLP 20 |
| Zinc | 67 mg/kg | NA | - |

BH - Borehole
 ug/kg - micrograms per kilogram
 mg/kg - milligrams per kilogram

ug/L - micrograms per liter
 mg/L - milligrams per liter

Table H.20
 Site Inspection Derived Waste - Drum Containing Soil Cuttings from 021-020BH
 148th FG, Duluth Air National Guard Base
 Duluth, Minnesota

| Analyte | Maximum Concentration in Soil Cuttings | Action Level Concentration mg/kg | Standard Used |
|--------------|---|-------------------------------------|------------------|
| VOC | | | |
| Acetone | 85 ug/kg | NA | - |
| Benzene | 140 ug/kg | 10 | TCLP 20 |
| 2-Butanone | 31 ug/kg | NA | - |
| Toluene | 14 ug/kg | NA | - |
| TPH | | | |
| TPH | 50 mg/kg | NA | - |
| Metal | | | |
| Aluminum | 10,000 mg/kg | NA | - |
| Cadmium | 0.28 mg/kg | 20 | TCLP 20 |
| Chromium | 10 mg/kg | 100 | TCLP 20 |
| Copper | 58.2 mg/kg | NA | - |
| Nickel | 18 mg/kg | NA | - |
| Lead | 3.6 mg/kg | 100 | TCLP 20 |
| Zinc | 40 mg/kg | NA | - |

BH - Borehole
 ug/kg - micrograms per kilogram
 mg/kg - milligrams per kilogram

ug/L - micrograms per liter
 mg/L - milligrams per liter

Table H.21
Site Inspection Derived Waste - Drum Containing Soil Cuttings from 021-021BH
148th FG, Duluth Air National Guard Base
Duluth, Minnesota

| Analyte | Maximum Concentration in Soil Cuttings | Action Level Concentration mg/kg | Standard Used |
|-----------------|---|-------------------------------------|------------------|
| VOC | | | |
| Benzene | 47 ug/kg | 10 | TCLP 20 |
| Ethylbenzene | 8 ug/kg | NA | - |
| Toluene | 19 ug/kg | NA | - |
| Xylenes (total) | 34 ug/kg | NA | - |
| TPH | | | |
| TPH | 140 mg/kg | NA | - |
| Metal | | | |
| Aluminum | 11,000 mg/kg | NA | - |
| Arsenic | 1 mg/kg | 100 | TCLP 20 |
| Cadmium | 0.09 mg/kg | 20 | TCLP 20 |
| Chromium | 12 mg/kg | 100 | TCLP 20 |
| Copper | 92.6 mg/kg | NA | - |
| Nickel | 20 mg/kg | NA | - |
| Lead | 3.0 mg/kg | 100 | TCLP 20 |
| Zinc | 71 mg/kg | NA | - |

BH - Borehole
ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

ug/L - micrograms per liter
mg/L - milligrams per liter

Table H.22

Site Inspection Derived Waste - Drum Containing Soil Cuttings from 021-022BH
 148th FG, Duluth Air National Guard Base
 Duluth, Minnesota

| Analyte | Maximum Concentration in Soil Cuttings | Action Level Concentration mg/kg | Standard Used |
|--------------------|---|-------------------------------------|------------------|
| VOC | | | |
| Benzene | 120 ug/kg | 10 | TCLP 20 |
| 1,2-Dichloroethane | 5 ug/kg | 10 | TCLP 20 |
| Ethylbenzene | 130 ug/kg | NA | - |
| Toluene | 500 ug/kg | NA | - |
| Xylenes(total) | 740 ug/kg | NA | - |

BH - Borehole

ug/kg - micrograms per kilogram
 mg/kg - milligrams per kilogram

ug/L - micrograms per liter
 mg/L - milligrams per liter

Table H.23
Site Inspection Derived Waste - Drum Containing Soil Cuttings from 021-023BH & 021-024BH
148th FG, Duluth Air National Guard Base
Duluth, Minnesota

| Analyte | Maximum Concentration in Soil Cuttings | Action Level Concentration mg/kg | Standard Used |
|------------------------|---|-------------------------------------|------------------|
| VOC | | | |
| Acetone | 38 ug/kg | NA | - |
| Benzene | 1,100 ug/kg | 10 | TCCLP 20 |
| 1,2-Dichloroethane | 52 ug/kg | 10 | TCCLP 20 |
| Ethylbenzene | 110 ug/kg | NA | - |
| Toluene | 350 ug/kg | NA | - |
| Xylenes(total) | 370 ug/kg | NA | - |
| SVOC | | | |
| Benzo(a)Anthracene | 690 ug/kg | NA | - |
| Benzo(k)Fluoranthene | 1,200 ug/kg | NA | - |
| Benzo(a)Pyrene | 760 ug/kg | NA | - |
| Benzo(g,h,i)Perylene | 610 ug/kg | NA | - |
| Chrysene | 860 ug/kg | NA | - |
| Fluoranthene | 1,500 ug/kg | NA | - |
| Indeno(1,2,3-cd)Pyrene | 530 ug/kg | NA | - |
| Phenanthrene | 990 ug/kg | NA | - |
| Pyrene | 1,500 ug/kg | NA | - |
| TPH | | | |
| TPH | 190 mg/kg | NA | - |
| Pesticides | | | |
| Chlordane(technical) | 47 ug/kg | 0.6 | TCCLP 20 |
| Metal | | | |
| Aluminum | 17,800 mg/kg | NA | - |
| Arsenic | 2 mg/kg | 100 | TCCLP 20 |
| Beryllium | 1.0 mg/kg | NA | - |
| Cadmium | 0.20 mg/kg | 20 | TCCLP 20 |
| Chromium | 29 mg/kg | 100 | TCCLP 20 |
| Copper | 61.6 mg/kg | NA | - |
| Nickel | 30 mg/kg | NA | - |
| Lead | 20 mg/kg | 100 | TCCLP 20 |
| Zinc | 67 mg/kg | NA | - |

BH - Borehole
ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

ug/L - micrograms per liter
mg/L - milligrams per liter

Table H.24

Site Inspection Derived Waste - Drum Containing Soil Cuttings from 021-025BH
 148th FG, Duluth Air National Guard Base
 Duluth, Minnesota

| Analyte | Maximum Concentration in Soil Cuttings | Action Level Concentration mg/kg | Standard Used |
|-----------|---|-------------------------------------|------------------|
| TPH | | | |
| | 15 mg/kg | NA | - |
| Metal | | | |
| Aluminum | 13,000 mg/kg | NA | - |
| Arsenic | 1 mg/kg | 100 | TCLP 20 |
| Beryllium | 1.0 mg/kg | NA | - |
| Chromium | 26 mg/kg | 100 | TCLP 20 |
| Copper | 67 mg/kg | NA | - |
| Nickel | 31 mg/kg | NA | - |
| Lead | 5.0 mg/kg | 100 | TCLP 20 |
| Zinc | 54 mg/kg | NA | - |

BH - Borehole

ug/kg - micrograms per kilogram
 mg/kg - milligrams per kilogram

ug/L - micrograms per liter
 mg/L - milligrams per liter

Table II.25

Site Inspection Derived Waste - Drum Containing Purge Water and Development Water from 021-026MW
 148th FG, Duluth Air National Guard Base
 Duluth, Minnesota

| Analyte | Maximum Concentration in Purge Water | Action Level Concentration mg/L | Standard Used |
|----------|---|------------------------------------|------------------|
| Metal | | | |
| Aluminum | 2.96 mg/L | NA | - |
| Cadmium | 0.0004 mg/L | 1.0 | TCLP |
| Chromium | 0.004 mg/L | 1.5 | TCLP |
| Copper | 0.03 mg/L | NA | - |
| Nickel | 0.046 mg/L | NA | - |
| Zinc | 0.02 mg/L | NA | - |

BH - Borehole

ug/kg - micrograms per kilogram

mg/kg - milligrams per kilogram

ug/L - micrograms per liter

mg/L - milligrams per liter

APPENDIX I
DATA VALIDATION

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SECTION I.1 INTRODUCTION

This appendix contains the data validation of the soil, water, and sediment samples that were taken during the Addendum 1 RCRA Facility Investigation at the Minnesota Air National Guard Base, Duluth, Minnesota. A summary of the data validation follows.

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November 21, 1994

Karen Satterfield
Southern Petroleum Laboratories
P.O.Box 20807
Houston, Texas 77225
(713) 660-0901 FAX: (713) 660-8975

Dear Karen,

The following is a brief summary of some analytical issues questioned on the Duluth Air National Guard Project in Minnesota completed in the beginning in October. Please review the following questions and feel free to contact me for any questions regarding the validation at (210) 731-0000 (ext. 188).

Sincerely,

A handwritten signature in black ink, appearing to read "Mark Escobar". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Mark Escobar
Project Chemist

Enclosure: As stated



OPERATIONAL TECHNOLOGIES
C O R P O R A T I O N

**Questions Regarding Validation on
Duluth Air National Guard Site Investigation
Duluth, Minnesota 1308-101
Southern Petroleum Laboratories, Houston Texas**

***General*:** Sample 017-010 BH 0.5'-1.0' (Lab ID# 9410269-01) needs to be corrected from 10/4/94 to 10/6/94 on Date Sampled listed on the Report Form.

Pesticide/PCB (SW 8080)

1. The following samples were not provided with Raw Data/Chromatograms:

| | |
|------------|--------------------|
| 021-RB07 | Lab ID# 9410180-08 |
| DANGB-FB01 | Lab ID# 9410269-08 |
| DANGB-FB02 | Lab ID# 9410269-09 |

**Duluth Air National Guard Site Investigation
Duluth, Minnesota 1308-101-S002
Southern Petroleum Laboratories, Houston, Texas
Data Validation Brief Summary**

SAMPLE:

WATER

017-RB03

Lab ID# 9407813-01

SVOA/SW8270 =

- *No hits were detected above assigned detection limits.*
- *Met 7 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *No hits were detected above the detection limit of 0.5 mg/L.*
- *Raw Data/chromatogram and surrogate recovery was not provided.*
- *Blanks were clean of any hits above the detection limits.*

SAMPLE:

SOIL

017-018 BH 1.5'-2'

Lab ID# 9407813-02

SVOA/SW8270 =

***Hits were detected on Phenanthrene at 470 mg/kg and on Pyrene at 460 mg/kg with detection limits of 330 mg/kg.**

***Met 14 extraction holding time and 40 day extract holding time.**

***COC information verified.**

***Surrogates were valid and within QC Limits.**

***Blanks were clean of any hits above the detection limits.**

TPH/USEPA 418.1=

***Met 28 day holding time.**

***COC information verified.**

***Hit at 260 mg/kg with a detection limit of 10 mg/kg.**

***Raw data/Chromatogram or surrogate recovery was not provided.**

***Blanks were clean of any hits above the detection limits.**

SAMPLE:

SOIL

017-018 BH 5'-5.5'

Lab ID# 9407813-03

SVOA/SW8270 =

- *No hits were detected above assigned detection limits.*
- *Met 14 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*
- *An initial 2x dilution was performed on this analysis.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *Hit at 250 mg/kg was detected above the detection limit of 10 mg/kg.*
- *Raw data/Chromatogram or surrogate recovery was not provided.*
- *Blanks were clean of any hits above the detection limits.*

SAMPLE:

SOIL

017-018 BH 5.5'-6'

Lab ID# 9407813-04

SVOA/SW8270 =

***No hits were detected above assigned detection limits.**

***Met 14 extraction holding time and 40 day extract holding time.**

***COC information verified.**

***Surrogates were valid and within QC Limits.**

***Blanks were clean of any hits above the detection limits.**

***An initial 5x and a secondary 20x dilution was performed due to one internal standard being outside QC limits.**

TPH/USEPA 418.1=

***Met 28 day holding time.**

***COC information verified.**

***Hit was detected at 27 mg/kg with a detection limit of 10 mg/kg.**

***Raw Data/Chromatogram and surrogate recovery was not provided.**

***Blanks were clean of any hits above the detection limits.**

SAMPLE:

SOIL

017-018 BH 9'-9.5'

Lab ID# 9407813-05

SVOA/SW8270 =

***No hits were detected above assigned detection limits.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
*Blanks were clean of any hits above the detection limits.**

TPH/USEPA 418.1=

***Met 28 day holding time.
*COC information verified.
*A hit was detected at 12 mg/kg with a detection limit of 10 mg/kg.
*Raw Data/Chromatogram or surrogate recovery was not provided.
*Blanks were clean of any hits above the detection limits.**

SAMPLE:

SOIL

017-019 BH 2'-2.5'

Lab ID# 9407813-06

SVOA/SW8270 =

- *No hits were detected above assigned detection limits.*
- *Met 14 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *Hit at 99 mg/kg with a detection limit of 10 mg/kg.*
- *Raw Data/Chromatogram or surrogate recovery was not provided for.*
- *Blanks were clean of any hits above the detection limits.*

SAMPLE:

SOIL

017-019 BH 5'-5.5'

Lab ID# 9407813-07

SVOA/SW8270 =

- *No hits were detected above assigned detection limits.*
- *Met 14 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *No hits were above the detection limit of 10 mg/kg.*
- *Raw Data/Chromatogram or surrogate recovery was not provided.*
- *Blanks were clean of any hits above the detection limits.*

SAMPLE:

SOIL

017-019 BH 9'-9.5'

Lab ID# 9407813-08

SVOA/SW8270 =

**No hits were detected above assigned detection limits.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
*Hit was at 14 mg/kg with a detection limit of 10 mg/kg.
*Raw Data/Chromatogram and surrogate recovery was not provided for.
Blanks were clean of any hits above the detection limits.

SAMPLE:

SOIL

017-020 BH 1.5'-2'

Lab ID# 9407813-09

SVOA/SW8270 =

- *No hits were detected above assigned detection limits.*
- *Met 14 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *Hit was detected at 24 mg/kg with a detection limit of 10 mg/kg.*
- *Raw Data/Chromatogram and surrogate recovery was not provided for.*
- *Blanks were clean of any hits above the detection limits.*

SAMPLE:

SOIL

017-020 BH 5'-5.5'

Lab ID# 9407813-10

SVOA/SW8270 =

- *No hits were detected above assigned detection limits.*
- *Met 14 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*
- *An initial 5x dilution was performed on this analysis.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *Hit was detected at 110 mg/kg with a detection limit of 10 mg/kg.*
- *Raw Data/Chromatogram and surrogate recovery was not provided for.*
- *Blanks were clean of any hits above the detection limits.*

SAMPLE:

SOIL

017-020 BH 9'-9.5'

Lab ID# 9407813-11

SVOA/SW8270 =

- *No hits were detected above assigned detection limits.*
- *Met 14 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *Hit was detected at 29 mg/kg with a detection limit of 10 mg/kg.*
- *Raw Data/Chromatogram and surrogate recovery was not provided for.*
- *Blanks were clean of any hits above the detection limits.*

SAMPLE:

WATER

017-RB 02

Lab ID# 9407703-01

SVOA/SW8270 =

- *No hits were detected above assigned detection limits.**
- *Met 7 extraction holding time and 40 day extract holding time.**
- *COC information verified.**
- *Surrogates were valid and within QC Limits.**
- *Blanks were clean of any hits above the detection limits.**

TPH/USEPA 418.1=

- *Met 28 day holding time.**
- *COC information verified.**
- *No hit was detected above the assigned detection limit of 0.5 mg/kg.**
- *Raw Data/Chromatogram and surrogate recovery was not provided for.**
- *Blanks were clean of any hits above the detection limits.**

SAMPLE:

SOIL

017-014 BH 1.5'-2'

Lab ID# 9407703-02

SVOA/SW8270 =

- *No hits were detected above assigned detection limits.*
- *Met 14 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*
- *An initial 10x dilution was performed for this analysis.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *Hit was detected at 3600 mg/kg with a detection limit of 10 mg/kg.*
- *Raw Data/Chromatogram and surrogate recovery was not provided for.*
- *Blanks were clean of any hits above the detection limits.*

SAMPLE:

SOIL

017-014 BH 5'-5.5'

Lab ID# 9407703-03

SVOA/SW8270 =

**No hits were detected above assigned detection limits.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
*Hit was detected at 350 mg/kg with a detection limit of 10 mg/kg.
*Raw Data/Chromatogram and surrogate recovery was not provided for.
Blanks were clean of any hits above the detection limits.

SAMPLE:

SOIL

017-014 BH 5.5'-6'

Lab ID# 9407703-04

SVOA/SW8270 =

- *No hits were detected above assigned detection limits.*
- *Met 14 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *Hit was detected at 49 mg/kg with a detection limit of 10 mg/kg.*
- *Raw Data/Chromatogram and surrogate recovery was not provided for.*
- *Blanks were clean of any hits above the detection limits.*

SAMPLE:

SOIL

017-014 BH 9'-9.5'

Lab ID# 9407703-05

SVOA/SW8270 =

- *No hits were detected above assigned detection limits.*
- *Met 14 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *Hit was detected at 17 mg/kg with a detection limit of 10 mg/kg.*
- *Raw Data/Chromatogram and surrogate recovery was not provided for.*
- *Blanks were clean of any hits above the detection limits.*

SAMPLE:

SOIL

017-012 BH 2'-2.5'

Lab ID# 9407703-06

SVOA/SW8270 =

****No hits were detected above assigned detection limits.***

****Met 14 extraction holding time and 40 day extract holding time.***

****COC information verified.***

****Surrogates were valid and within QC Limits.***

****Blanks were clean of any hits above the detection limits.***

TPH/USEPA 418.1=

****Met 28 day holding time.***

****COC information verified.***

****Hit was detected at 190 mg/kg with a detection limit of 10 mg/kg.***

****Raw Data/Chromatogram and surrogate recovery was not provided for.***

****Blanks were clean of any hits above the detection limits.***

SAMPLE:

SOIL

017-012 BH 5'-5.5'

Lab ID# 9407703-07

SVOA/SW8270 =

***No hits were detected above assigned detection limits.**

***Met 14 extraction holding time and 40 day extract holding time.**

***COC information verified.**

***Surrogates were valid and within QC Limits.**

***Blanks were clean of any hits above the detection limits.**

TPH/USEPA 418.1=

***Met 28 day holding time.**

***COC information verified.**

***Hit was detected at 13 mg/kg with a detection limit of 10 mg/kg.**

***Raw Data/Chromatogram and surrogate recovery was not provided for.**

***Blanks were clean of any hits above the detection limits.**

SAMPLE:**SOIL****017-011 BH 1.5'-2'****Lab ID# 9407703-08****SVOA/SW8270 =**

***Hits were detected at 1000 ug/kg for Acenaphthalene, 2800 ug/kg for Benzo(a)Anthracene, 2900 ug/kg for Benzo(k)Fluoranthene, 3100 ug/kg for Benzo(a)Pyrene, 2000 ug/kg for Benzo(g,h,i)Perylene, 870 ug/kg for Carbazole, 3600 ug/kg for Chrysene, 450 ug/kg for Dibenzofuran, 1800 ug/kg for Ideno(1,2,3-cd)Pyrene, and 400 ug/kg for Naphthalene that all had detection limits of 330 ug/kg. Also, Fluoranthene had a hit at 5800 ug/kg, Phenanthrene and Pyrene with a hits at 4900 ug/kg and all three having detection limits of 3300 ug/kg.**

***Met 14 extraction holding time and 40 day extract holding time.**

***COC information verified.**

***Surrogates were valid and within QC Limits.**

***Blanks were clean of any hits above the detection limits.**

***A 10x dilution was performed on this analysis.**

TPH/USEPA 418.1=

***Met 28 day holding time.**

***COC information verified.**

***Hit was detected at 180 mg/kg with a detection limit of 10 mg/kg.**

***Raw data/Chromatogram and surrogate recovery was not provided for.**

***Blanks were clean of any hits above the detection limits.**

SAMPLE:

SOIL

017-011 BH 5'-5.5'

Lab ID# 9407703-09

SVOA/SW8270 =

- *No hits were detected above assigned detection limits.*
- *Met 14 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *Hit was detected at 25 mg/kg with a detection limit of 10 mg/kg.*
- *Raw data/Chromatogram and surrogate recovery was not provided for.*
- *Blanks were clean of any hits above the detection limits.*

SAMPLE:**SOIL****017-010 BH 5'-5.5'****Lab ID# 9407703-10****SVOA/SW8270 =******No hits were detected above assigned detection limits.*******Met 14 extraction holding time and 40 day extract holding time.*******COC information verified.*******Surrogates were valid and within QC Limits.*******Blanks were clean of any hits above the detection limits.*****TPH/USEPA 418.1=******Met 28 day holding time.*******COC information verified.*******Hit was detected at 25 mg/kg with a detection limit of 10 mg/kg.*******Raw data/Chromatogram and surrogate recovery was not provided for.*******Blanks were clean of any hits above the detection limits.***

SAMPLE:

SOIL

017-010 BH 5.5'-6'

Lab ID# 9407703-11

SVOA/SW8270 =

- *No hits were detected above assigned detection limits.**
- *Met 14 extraction holding time and 40 day extract holding time.**
- *COC information verified.**
- *Surrogates were valid and within QC Limits.**
- *Blanks were clean of any hits above the detection limits.**

TPH/USEPA 418.1=

- *Met 28 day holding time.**
- *COC information verified.**
- *Hit was detected at 22 mg/kg with a detection limit of 10 mg/kg.**
- *Raw Data/Chromatogram and surrogate recovery was not provided for.**
- *Blanks were clean of any hits above the detection limits.**

SAMPLE:**SOIL****017-010 BH 9'-9.5'****Lab ID# 9407703-12****SVOA/SW8270 =******No hits were detected above assigned detection limits.*******Met 14 extraction holding time and 40 day extract holding time.*******COC information verified.*******Surrogates were valid and within QC Limits.*******Blanks were clean of any hits above the detection limits.*****TPH/USEPA 418.1=******Met 28 day holding time.*******COC information verified.*******No hit was detected at the detection limit of 10 mg/kg.*******Raw data/chromatogram and surrogate recovery was not provided for.*******Blanks were clean of any hits above the detection limits.***

SAMPLE:

SOIL

017-017 BH 2'-2.5'

Lab ID# 9407703-13

SVOA/SW8270 =

- *No hits were detected above assigned detection limits.**
- *Met 14 extraction holding time and 40 day extract holding time.**
- *COC information verified.**
- *Surrogates were valid and within QC Limits.**
- *Blanks were clean of any hits above the detection limits.**

TPH/USEPA 418.1=

- *Met 28 day holding time.**
- *COC information verified.**
- *Hit was detected at 140 mg/kg with a detection limit of 10 mg/kg.**
- *Raw data/Chromatogram and surrogate recovery was not provided for.**
- *Blanks were clean of any hits above the detection limits.**

SAMPLE:

SOIL

017-017 BH 5'-5.5'

Lab ID# 9407703-14

SVOA/SW8270 =

***Hit was detected on Bis(2-ethylhexyl)phthalate at 820 mg/kg with a detection limit of 330 ug/kg.**

***Met 14 extraction holding time and 40 day extract holding time.**

***COC information verified.**

***Surrogates were valid and within QC Limits.**

***Blanks were clean of any hits above the detection limits.**

TPH/USEPA 418.1=

***Met 28 day holding time.**

***COC information verified.**

***Hit was detected at 210 mg/kg with a detection limit of 10 mg/kg.**

***Raw data/Chromatogram and surrogate recovery was not provided for.**

***Blanks were clean of any hits above the detection limits.**

SAMPLE:**SOIL****017-017 BH 9'-9.5'****Lab ID# 9407703-15****SVOA/SW8270 =**

- *No hits were detected above assigned detection limits.*
- *Met 14 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *Hit was detected at 110 mg/kg with a detection limit of 10 mg/kg.*
- *Raw data/Chromatogram and surrogate recovery was not provided for.*
- *Blanks were clean of any hits above the detection limits.*

SAMPLE:**SOIL****021-017 BH 1.5'-2'****Lab ID# 9407612-01****VOA/SW8240 =**

**No hits were detected above the assigned detection limits.
*All met 14 day holding time.
*COC information verified.
*All surrogate recoveries were within QC limits.
Blanks were clean and no compounds were detected above the detection limits.

SVOA/SW8270 =

**No hits were detected above the assigned detection limits.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 = **Clean, No hits above the detection limits assigned.*

**Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
*Hit at 86 mg/kg with detection limit of 10 mg/kg.
*Raw data/Chromatogram and surrogate recovery was not provided for.
Blanks were clean of any hits above the detection limits.

METALS**SW6010/7000=**

**The Elements that were not detected above the detection limit were Ag, As, Be, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.
*All met 6 month holding times.
COC information verified.

SAMPLE:**SOIL****021-017 BH 6'-6.5'****Lab ID# 9407612-02****VOA/SW8240 =****No hits were detected above the assigned detection limits.***All met 14 day holding time.***COC information verified.***All surrogate recoveries were within QC limits.***Blanks were clean and no compounds were detected above the detection limits.***SVOA/SW8270 =****No hits were detected above the assigned detection limits.***Met 14 extraction holding time and 40 day extract holding time.***COC information verified.***Surrogates were valid and within QC Limits.***Blanks were clean of any hits above the detection limits.***PEST/SW8080 =** **Clean, No hits above the detection limits assigned.***Met 14 extraction holding time and 40 day extract holding time.***COC information verified.***Surrogates were valid and within QC Limits.***Blanks were clean of any hits above the detection limits.***TPH/USEPA 418.1=****Met 28 day holding time.***COC information verified.***Hit at 14 mg/kg with detection limit of 10 mg/kg.***Raw data/Chromatogram and surrogate recovery was not provided for.***Blanks were clean of any hits above the detection limits.***METALS****SW6010/7000=****The Elements that were not detected above the detection limit were Ag, Be, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.***All met 6 month holding times.***COC information verified.*

SAMPLE:**SOIL****021-017 BH 6.5'-7'****Lab ID# 9407612-03****VOA/SW8240 =**

**No hits were detected above the assigned detection limits.
*All met 14 day holding time.
*COC information verified.
*All surrogate recoveries were within QC limits.
Blanks were clean and no compounds were detected above the detection limits.

SVOA/SW8270 =

**No hits were detected above the assigned detection limits.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 = **Clean, No hits above the detection limits assigned.*

**Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
*No hit detected above the detection limit of 10 mg/kg.
*Raw data/Chromatogram and surrogate recovery was not provided for.
Blanks were clean of any hits above the detection limits.

METALS**SW6010/7000=**

**The Elements that were not detected above the detection limit were Ag, Be, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.
*All met 6 month holding times.
COC information verified.

SAMPLE:**SOIL****021-017 BH 14'-14.5'****Lab ID# 9407612-04****VOA/SW8240 =**

**No hits were detected above the assigned detection limits.
*All met 14 day holding time.
*COC information verified.
*All surrogate recoveries were within QC limits.
Blanks were clean and no compounds were detected above the detection limits.

SVOA/SW8270 =

**No hits were detected above the assigned detection limits.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 = **Clean, No hits above the detection limits assigned.*

**Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
*Hit at 22 mg/kg with a detection limit of 10 mg/kg.
*Raw data/Chromatogram and surrogate recovery was not provided for.
Blanks were clean of any hits above the detection limits.

METALS**SW6010/7000=**

**The Elements that were not detected above the detection limit were Ag, As, Be, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.
*All met 6 month holding times.
COC information verified.

SAMPLE:**WATER****021-RB 03****Lab ID# 9407612-05****VOA/SW8240 =**

**No hits were detected above the assigned detection limits.
*All met 7 day holding time.
*COC information verified.
*All surrogate recoveries were within QC limits.
Blanks were clean and no compounds were detected above the detection limits.

SVOA/SW8270 =

**No hits were detected above the assigned detection limits.
*Met 7 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 = **Clean, No hits above the detection limits assigned.*

**Met 7 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
*Blanks were clean of any hits above the detection limits.
Raw data/Chromatograms were not provided for.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
*No hit above the detection limit of 0.5 mg/L.
*Raw data/Chromatogram and surrogate recovery was not provided for.
Blanks were clean of any hits above the detection limits.

METALS**SW6010/7000=**

**The Elements that were not detected above the detection limit were Ag, Al, As, Be, Cd, Cr, Hg, Pb, Sb, Se, and Tl. Other elements were detected above the stated detection limits.
*All met 6 month holding times.
COC information verified.

SAMPLE:

WATER

021-TB 03

Lab ID# 9407612-05

VOA/SW8240 =

**No hits were detected above the assigned detection limits.*

**All met 7 day holding time.*

**COC information verified.*

**All surrogate recoveries were within QC limits.*

**Blanks were clean and no compounds were detected above the detection limits.*

SAMPLE:

WATER

021-026MW-GW02

Lab ID# 9407971-01

VOA/SW8240 =

**No hits were detected above the assigned detection limits.*

**All met 7 day holding time.*

**COC information verified.*

**All surrogate recoveries were within QC limits.*

**Blanks were clean and no compounds were detected above the detection limits.*

METALS

SW6010/7000=

**The Elements that were not detected above the detection limit were As, Be, Hg, Pb, Sb, Se, and Tl. Other elements were detected above the stated detection limits.*

**All met 6 month holding times.*

**COC information verified.*

SAMPLE:**WATER****021-RB05****Lab ID# 9407971-02****VOA/SW8240 =**

**No hits were detected above the assigned detection limits.
*All met 7 day holding time.
*COC information verified.
*All surrogate recoveries were within QC limits.
Blanks were clean and no compounds were detected above the detection limits.

SVOA/SW8270 =

**No hits were detected above the assigned detection limits.
*Met 7 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 = **Clean, No hits above the detection limits assigned.*

**Met 7 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
*Blanks were clean of any hits above the detection limits.
Raw data/Chromatograms were not provided for.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
*No hit above the detection limit of 0.5 mg/L.
*Raw data/Chromatogram and surrogate recovery was not provided for.
Blanks were clean of any hits above the detection limits.

METALS**SW6010/7000=**

**The Elements that were not detected above the detection limit were Al, As, Be, Cd, Cr, Cu, Hg, Ni, Pb, Sb, Se, and Tl. Other elements were detected above the stated detection limits.
*All met 6 month holding times.
COC information verified.

SAMPLE:

WATER

018-FB01

Lab ID# 9407971-03

VOA/SW8240 =

**No hits were detected above the assigned detection limits.*

**All met 7 day holding time.*

**COC information verified.*

**All surrogate recoveries were within QC limits.*

**Blanks were clean and no compounds were detected above the detection limits.*

SAMPLE:

WATER

018-RB01

Lab ID# 9407971-04

VOA/SW8240 =

**No hits were detected above the assigned detection limits.*

**All met 7 day holding time.*

**COC information verified.*

**All surrogate recoveries were within QC limits.*

**Blanks were clean and no compounds were detected above the detection limits.*

SAMPLE:

WATER

018-TB01

Lab ID# 9407971-05

VOA/SW8240 =

****No hits were detected above the assigned detection limits.***

****All met 7 day holding time.***

****COC information verified.***

****All surrogate recoveries were within QC limits.***

****Blanks were clean and no compounds were detected above the detection limits.***

SAMPLE:

WATER

017-FB01

Lab ID# 9407971-06

SVOA/SW8270 =

***No hits were detected above the assigned detection limits.
*Met 7 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
*Blanks were clean of any hits above the detection limits.**

TPH/USEPA 418.1=

***Met 28 day holding time.
*COC information verified.
*No hit above the detection limit of 0.5 mg/L.
*Raw data/Chromatogram and surrogate recovery was not provided for.
*Blanks were clean of any hits above the detection limits.**

SAMPLE:**SOIL****017-13 BH 1.5'-2'****Lab ID# 9407680-01****SVOA/SW8270 =**

***Hits on Benzo(b)Fluoroanthene at 420 ug/kg, Chrysene at 370 ug/kg, Fluoranthene at 590 ug/kg, Phenanthrene at 390 ug/kg, and Pyrene at 640 ug/kg with detection limits of 330 ug/kg.**

***Met 14 extraction holding time and 40 day extract holding time.**

***COC information verified.**

***Surrogates were valid and within QC Limits.**

***Blanks were clean of any hits above the detection limits.**

TPH/USEPA 418.1=

***Met 28 day holding time.**

***COC information verified.**

***Hit at 275 mg/kg with the detection limit of 10 mg/kg.**

***Raw data/Chromatogram and surrogate recovery was not provided for.**

***Blanks were clean of any hits above the detection limits.**

SAMPLE:

SOIL

017-13 BH 5'-5.5'

Lab ID# 9407680-02

SVOA/SW8270 =

- *No hits were detected above the assigned detection limits.*
- *Met 14 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *Hit at 370 mg/kg with the detection limit of 10 mg/kg.*
- *Raw data/Chromatogram and surrogate recovery was not provided for.*
- *Blanks were clean of any hits above the detection limits.*

SAMPLE:

SOIL

017-13 BH 9'-9.5'

Lab ID# 9407680-03

SVOA/SW8270 =

***Hit on Di-n-butyl phthalate was detected at 430 ug/kg with a detection limit of 330 ug/kg.**

***Met 14 extraction holding time and 40 day extract holding time.**

***COC information verified.**

***Surrogates were valid and within QC Limits.**

***Blanks were clean of any hits above the detection limits.**

TPH/USEPA 418.1=

***Met 28 day holding time.**

***COC information verified.**

***Hit at 34 mg/kg with the detection limit of 10 mg/kg.**

***Raw data/Chromatogram and surrogate recovery was not provided for.**

***Blanks were clean of any hits above the detection limits.**

SAMPLE:

SOIL

017-15 BH 2'-2.5'

Lab ID# 9407680-04

SVOA/SW8270 =

- *No hits were detected above the assigned detection limits.*
- *Met 14 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*
- *A 2x dilution was performed on this analysis.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *Hit at 300 mg/kg with the detection limit of 10 mg/kg.*
- *Raw data/Chromatogram and surrogate recovery was not provided for.*
- *Blanks were clean of any hits above the detection limits.*

SAMPLE:**SOIL****017-15 BH 5.5'-6'****Lab ID# 9407680-05****SVOA/SW8270 =**

- *No hits were detected above the assigned detection limits.*
- *Met 14 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*
- *A 2x dilution was performed on this analysis.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *Hit at 110 mg/kg with the detection limit of 10 mg/kg.*
- *Raw data/Chromatogram and surrogate recovery was not provided for.*
- *Blanks were clean of any hits above the detection limits.*

SAMPLE:

SOIL

017-15 BH 9.5'10'

Lab ID# 9407680-06

SVOA/SW8270 =

**No hits were detected above the assigned detection limits.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
*Blanks were clean of any hits above the detection limits.
A 2x dilution was performed on this analysis.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
*Hit at 22 mg/kg with the detection limit of 10 mg/kg.
*Raw data/Chromatogram and surrogate recovery was not provided for.
Blanks were clean of any hits above the detection limits.

SAMPLE:**SOIL****017-16 BH 1.5'-2'****Lab ID# 9407680-07****SVOA/SW8270 =**

- *No hits were detected above the assigned detection limits.*
- *Met 14 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*
- *A 5x dilution was performed on this analysis.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *Hit at 7700 mg/kg with the detection limit of 200 mg/kg. A 20x dilution was performed.*
- *Raw data/Chromatogram and surrogate recovery was not provided for.*
- *Blanks were clean of any hits above the detection limits.*

SAMPLE:**SOIL****017-16 BH 5.0'-5.5'****Lab ID# 9407680-08****SVOA/SW8270 =**

- *No hits were detected above the assigned detection limits.*
- *Met 14 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *Hit at 270 mg/kg with the detection limit of 10 mg/kg.*
- *Raw data/Chromatogram and surrogate recovery was not provided for.*
- *Blanks were clean of any hits above the detection limits.*

SAMPLE:

SOIL

017-16 BH 9'-9.5'

Lab ID# 9407680-09

SVOA/SW8270 =

- *No hits were detected above the assigned detection limits.*
- *Met 14 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *Hit at 22 mg/kg with the detection limit of 10 mg/kg.*
- *Raw data/Chromatogram and surrogate recovery was not provided for.*
- *Blanks were clean of any hits above the detection limits.*

SAMPLE:**SOIL****017-13 BH 9'-9.5' MS****Lab ID# 9407680-10****SVOA/SW8270 =**

- *All spiked compounds were detected.*
- *Met 14 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were not within QC Limits due to matrix interference.*
- *Blanks were clean of any hits above the detection limits.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *Spiked compound hit at 430 mg/kg with the detection limit of 10 mg/kg.*
- *Raw data/Chromatogram and surrogate recovery was not provided for.*
- *Blanks were clean of any hits above the detection limits.*

SAMPLE:

SOIL

017-13 BH 9'-9.5' MSD Lab ID# 9407680-11

SVOA/SW8270 =

- *All spiked compounds were detected.*
- *Met 14 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were not within QC Limits due to matrix interference. 8 out of 11 RPD's were out of QC limits due to matrix interference.*
- *Blanks were clean of any hits above the detection limits.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *Spiked compound hit at 430 mg/kg with the detection limit of 10 mg/kg. RPD within QC Criteria.*
- *Raw data/Chromatogram and surrogate recovery was not provided for.*
- *Blanks were clean of any hits above the detection limits.*

SAMPLE:

WATER

017-RB 01

Lab ID# 9407680-12

SVOA/SW8270 =

- *No hits were detected above the assigned detection limits.*
- *Met 7 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *No hit was detected above the detection limit of 0.5 mg/l.*
- *Raw data/Chromatogram and surrogate recovery was not provided for.*
- *Blanks were clean of any hits above the detection limits.*

SAMPLE:**SOIL****021-022 BH 14'-14.5'****Lab ID# 9407405-03****VOA/SW8240 =*****Hits on Benzene at 79 ug/kg, Toluene at 6 ug/kg, and Total Xylenes at 18 mg/kg.*****All met 14 day holding time.*****COC information verified.*****All surrogate recoveries were within QC limits.*****Blanks were clean and no compounds were detected above the detection limits.*****No Raw data/Chromatograms were provided for validation.****SVOA/SW8270 =*****No hits were detected above the assigned detection limits.*****Met 14 extraction holding time and 40 day extract holding time.*****COC information verified.*****Surrogates were valid and within QC Limits.*****Blanks were clean of any hits above the detection limits.*****No Raw data/Chromatograms were provided for validation.****PEST/SW8080 = *No hits above the assigned detection limits.*****Met 14 extraction holding time and 40 day extract holding time.*****COC information verified.*****Surrogates were valid and within QC Limits.*****Blanks were clean of any hits above the detection limits.****TPH/USEPA 418.1=*****Met 28 day holding time.*****COC information verified.*****No hit above the detection limit of 10 mg/kg.*****Raw data/Chromatogram and surrogate recovery was not provided for.*****Blanks were clean of any hits above the detection limits.****METALS****SW6010/7000=*****The Elements that were not detected above the detection limit were Ag, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.*****All met 6 month holding times.*****COC information verified.**

SAMPLE:**SOIL****021-023 BH 1.5'-2'****Lab ID# 9407405-04****VOA/SW8240 =**

**No hits were detected above the assigned detection limits.
*All met 14 day holding time.
*COC information verified.
*All surrogate recoveries were within QC limits.
*Blanks were clean and no compounds were detected above the detection limits.
No Raw data/Chromatograms were provided for validation.

SVOA/SW8270 =

**Hits on Benzo(a)Anthracene at 690 ug/kg, Benzo(k)Fluoroanthene at 1200 ug/kg, Benzo(a)Pyrene at 760 ug/kg, Benzo(g,h,i)Perylene at 610 ug/kg, Chrysene at 860 ug/kg, Fluoranthene at 1500 ug/kg, Ideno(1,2,3-cd)Pyrene at 530 ug/kg, Phenanthrene at 990 ug/kg, and Pyrene at 1500 ug/kg.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
*Blanks were clean of any hits above the detection limits.
No Raw data/Chromatograms were provided for validation.

PEST/SW8080 = **Hit on Chlordane at 47 ug/kg with the detection limit of 8.5 ug/kg.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
*Hit at 190 mg/kg with a detection limit of 10 mg/kg.
*Raw data/Chromatogram and surrogate recovery was not provided for.
Blanks were clean of any hits above the detection limits.

METALS**SW6010/7000=**

**The Elements that were not detected above the detection limit were Ag, As, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.
*All met 6 month holding times.
COC information verified.

SAMPLE:**SOIL****021-023 BH 11'-11.5'****Lab ID# 9407405-05****VOA/SW8240 =**

**Hit on Benzene at 170 ug/kg with the detection limit of 25 ug/kg. The report shows hits on Acetone at 38 ug/kg, 1,2-Dichloroethene at 33 ug/kg, Ethylbenzene at 9 ug/kg, Toluene at 33 ug/kg, and Total xylenes at 33 ug/kg but the quantitative report on the raw data shows no such hits?*

**All met 14 day holding time.*

**COC information verified.*

**All surrogate recoveries were within QC limits.*

**Blanks were clean and no compounds were detected above the detection limits.*

SVOA/SW8270 =

**No hits were detected above the assigned detection limits.*

**Met 14 extraction holding time and 40 day extract holding time.*

**COC information verified.*

**Surrogates were valid and within QC Limits.*

**Blanks were clean of any hits above the detection limits.*

PEST/SW8080 = **Hit on Chlordane at 47 ug/kg with the detection limit of 8.5 ug/kg.*

**Met 14 extraction holding time and 40 day extract holding time.*

**COC information verified.*

**Surrogates were valid and within QC Limits.*

**Blanks were clean of any hits above the detection limits.*

TPH/USEPA 418.1=

**Met 28 day holding time.*

**COC information verified.*

**No hit was detected above the detection limit of 10 mg/kg.*

**Raw data/Chromatogram and surrogate recovery was not provided for.*

**Blanks were clean of any hits above the detection limits.*

METALS**SW6010/7000=**

**The Elements that were not detected above the detection limit were Ag, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.*

**All met 6 month holding times.*

**COC information verified.*

SAMPLE:**SOIL****021-023 BH 11.5'-12'****Lab ID# 9407405-06****VOA/SW8240 =*****Hit on Benzene at 630 ug/kg and 1,2-Dichloroethane at 39 ug/kg.*****All met 14 day holding time.*****COC information verified.*****All surrogate recoveries were within QC limits.*****Blanks were clean and no compounds were detected above the detection limits.****SVOA/SW8270 =*****No hits were detected above the assigned detection limits.*****Met 14 extraction holding time and 40 day extract holding time.*****COC information verified.*****Surrogates were valid and within QC Limits.*****Blanks were clean of any hits above the detection limits.****PEST/SW8080 = *No hits were detected above the assigned detection limits.*****Met 14 extraction holding time and 40 day extract holding time.*****COC information verified.*****Surrogates were valid and within QC Limits.*****Blanks were clean of any hits above the detection limits.****TPH/USEPA 418.1=*****Met 28 day holding time.*****COC information verified.*****Hit at 12 ug/kg was detected above the detection limit of 10 mg/kg.*****Raw data/Chromatogram and surrogate recovery was not provided for.*****Blanks were clean of any hits above the detection limits.****METALS****SW6010/7000=*****The Elements that were not detected above the detection limit were Ag, As, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.*****All met 6 month holding times.*****COC information verified.**

SAMPLE:**SOIL****021-023 BH 14'-14.5'****Lab ID# 9407405-07****VOA/SW8240 =**

**Hit on Benzene at 1100 ug/kg, 1,2-Dichloroethane at 52 ug/kg, Ethylbenzene at 110 ug/kg, Toluene at 350 ug/kg, and Total Xylenes at 370 ug/kg.*

**All met 14 day holding time.*

**COC information verified.*

**All surrogate recoveries were within QC limits.*

**Blanks were clean and no compounds were detected above the detection limits.*

SVOA/SW8270 =

**No hits were detected above the assigned detection limits.*

**Met 14 extraction holding time and 40 day extract holding time.*

**COC information verified.*

**Surrogates were valid and within QC Limits.*

**Blanks were clean of any hits above the detection limits.*

PEST/SW8080 = **No hits were detected above the assigned detection limits.*

**Met 14 extraction holding time and 40 day extract holding time.*

**COC information verified.*

**Surrogates were valid and within QC Limits.*

**Blanks were clean of any hits above the detection limits.*

TPH/USEPA 418.1=

**Met 28 day holding time.*

**COC information verified.*

**Hit at 18 ug/kg was detected above the detection limit of 10 mg/kg.*

**Raw data/Chromatogram and surrogate recovery was not provided for.*

**Blanks were clean of any hits above the detection limits.*

METALS**SW6010/7000=**

**The Elements that were not detected above the detection limit were Ag, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.*

**All met 6 month holding times.*

**COC information verified.*

SAMPLE:**SOIL****021-025 BH 1.5'-2'****Lab ID# 9407405-08****VOA/SW8240 =**

**No hits were detected above the assigned detection limits.
*All met 14 day holding time.
*COC information verified.
*All surrogate recoveries were within QC limits.
Blanks were clean and no compounds were detected above the detection limits.

SVOA/SW8270 =

**No hits were detected above the assigned detection limits.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 = **No hits were detected above the assigned detection limits.*

**Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
*Hit at 15 ug/kg was detected above the detection limit of 10 mg/kg.
*Raw data/Chromatogram and surrogate recovery was not provided for.
Blanks were clean of any hits above the detection limits.

METALS**SW6010/7000=**

**The Elements that were not detected above the detection limit were Ag, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.
*All met 6 month holding times.
COC information verified.

SAMPLE:**SOIL****021-025 BH 10'-10.5'****Lab ID# 9407405-09****VOA/SW8240 =****No hits were detected above the assigned detection limits.***All met 14 day holding time.***COC information verified.***All surrogate recoveries were within QC limits.***Blanks were clean and no compounds were detected above the detection limits.***SVOA/SW8270 =****No hits were detected above the assigned detection limits.***Met 14 extraction holding time and 40 day extract holding time.***COC information verified.***Surrogates were valid and within QC Limits.***Blanks were clean of any hits above the detection limits.***PEST/SW8080 =** **No hits were detected above the assigned detection limits.***Met 14 extraction holding time and 40 day extract holding time.***COC information verified.***Surrogates were valid and within QC Limits.***Blanks were clean of any hits above the detection limits.***TPH/USEPA 418.1=****Met 28 day holding time.***COC information verified.***Hit at 15 ug/kg was detected above the detection limit of 10 mg/kg.***Raw data/Chromatogram and surrogate recovery was not provided for.***Blanks were clean of any hits above the detection limits.***METALS****SW6010/7000=****The Elements that were not detected above the detection limit were Ag, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.***All met 6 month holding times.***COC information verified.*

SAMPLE:**SOIL****021-025 BH 14'-14.5'****Lab ID# 9407405-10****VOA/SW8240 =*****No hits were detected above the assigned detection limits.*****All met 14 day holding time.*****COC information verified.*****All surrogate recoveries were within QC limits.*****Blanks were clean and no compounds were detected above the detection limits.****SVOA/SW8270 =*****No hits were detected above the assigned detection limits.*****Met 14 extraction holding time and 40 day extract holding time.*****COC information verified.*****Surrogates were valid and within QC Limits.*****Blanks were clean of any hits above the detection limits.****PEST/SW8080 = *No hits were detected above the assigned detection limits.*****Met 14 extraction holding time and 40 day extract holding time.*****COC information verified.*****Surrogates were valid and within QC Limits.*****Blanks were clean of any hits above the detection limits.****TPH/USEPA 418.1=*****Met 28 day holding time.*****COC information verified.*****Hit at 15 ug/kg was detected above the detection limit of 10 mg/kg.*****Raw data/Chromatogram and surrogate recovery was not provided for.*****Blanks were clean of any hits above the detection limits.****METALS****SW6010/7000=*****The Elements that were not detected above the detection limit were Ag, As, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.*****All met 6 month holding times.*****COC information verified.**

SAMPLE:

SOIL

021-025BH 14'-14.5'MS Lab ID# 9407405-11

VOA/SW8240 =

- *All spiked compounds were detected within spiked amounts.*
- *All met 14 day holding time.*
- *COC information verified.*
- *All surrogate recoveries were within QC limits.*
- *Blanks were clean and no compounds were detected above the detection limits.*

SVOA/SW8270 =

- *All spiked compounds were detected within spiked amounts.*
- *Met 14 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*

PEST/SW8080 = **All spiked compounds were recovered within spiked amounts.*

- *Met 14 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *Spiked compound recovered at 420 ug/kg.*
- *Raw data/Chromatogram and surrogate recovery was not provided for.*
- *Blanks were clean of any hits above the detection limits.*

METALS

SW6010/7000=

- *Antimony was the only element that was not recovered within Spiked amount recovery.*
- *All met 6 month holding times.*
- *COC information verified.*

SAMPLE:

SOIL

021-025BH 14'-14.5'MSD Lab ID# 9407443-12

VOA/SW8240 = **All spiked compounds were detected within spiked amounts. All RPD's were within QC Criteria.
*All met 14 day holding time.
*COC information verified.
*All surrogate recoveries were within QC limits.
Blanks were clean and no compounds were detected above the detection limits.

SVOA/SW8270 = **All spiked compounds were detected within spiked amounts. All RPD's were within QC Criteria.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 = **All spiked compounds were recovered within spiked amounts. All RPD's were within QC Criteria.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

TPH/USEPA 418.1= **Met 28 day holding time.
*COC information verified.
*Spiked compound recovered at 410 ug/kg. RPD was within QC Limits.
*Raw data/Chromatogram and surrogate recovery was not provided for.
Blanks were clean of any hits above the detection limits.

METALS

SW6010/7000= **All spiked elements were recovered within spiked amounts. RPD's were within QC Criteria.
*All met 6 month holding times.
COC information verified.

SAMPLE:

WATER

021-TB1

Lab ID# 9407443-13

VOA/SW8240 =

**No hits were detected above the assigned detection limits.*

**All met 14 day holding time.*

**COC information verified.*

**All surrogate recoveries were within QC limits.*

**Blanks were clean and no compounds were detected above the detection limits.*

SAMPLE:**SOIL****021-015 BH 1.5'-2'****Lab ID# 9407566-01****VOA/SW8240 =**

**No hits were detected above the assigned detection limits.
*All met 14 day holding time.
*COC information verified.
*All surrogate recoveries were within QC limits.
Blanks were clean and no compounds were detected above the detection limits.

SVOA/SW8270 =

**No hits were detected above the assigned detection limits.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 = **No hits were detected above the assigned detection limits.*

**Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
*Hit at 16 ug/kg was detected above the detection limit of 10 mg/kg.
*Raw data/Chromatogram and surrogate recovery was not provided for.
Blanks were clean of any hits above the detection limits.

METALS**SW6010/7000=**

**The Elements that were not detected above the detection limit were Ag, Be, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.
*All met 6 month holding times.
COC information verified.

SAMPLE:**SOIL****021-015 BH 6'-6.5'****Lab ID# 9407566-02****VOA/SW8240 =**

**No hits were detected above the assigned detection limits.
*All met 14 day holding time.
*COC information verified.
*All surrogate recoveries were within QC limits.
Blanks were clean and no compounds were detected above the detection limits.

SVOA/SW8270 =

**No hits were detected above the assigned detection limits.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 = **No hits were detected above the assigned detection limits.*

**Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
*Hit at 15 ug/kg was detected above the detection limit of 10 mg/kg.
*Raw data/Chromatogram and surrogate recovery was not provided for.
Blanks were clean of any hits above the detection limits.

METALS**SW6010/7000=**

**The Elements that were not detected above the detection limit were Ag, Be, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.
*All met 6 month holding times.
COC information verified.

SAMPLE:**SOIL****021-016 BH 1.5'-2'****Lab ID# 9407566-03****VOA/SW8240 =**

**No hits were detected above the assigned detection limits.
*All met 14 day holding time.
*COC information verified.
*All surrogate recoveries were within QC limits.
Blanks were clean and no compounds were detected above the detection limits.

SVOA/SW8270 =

**No hits were detected above the assigned detection limits.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 = **No hits were detected above the assigned detection limits.*

**Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
*Hit at 67 ug/kg was detected above the detection limit of 10 mg/kg.
*Raw data/Chromatogram and surrogate recovery was not provided for.
Blanks were clean of any hits above the detection limits.

METALS**SW6010/7000=**

**The Elements that were not detected above the detection limit were Ag, As, Be, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.
*All met 6 month holding times.
COC information verified.

SAMPLE:**SOIL****021-016 BH 6'-6.5'****Lab ID# 9407566-04****VOA/SW8240 =**

**Hit on Acetone at 13 ug/kg with the detection limit of 10 ug/kg.
*All met 14 day holding time.
*COC information verified.
*All surrogate recoveries were within QC limits.
Blanks were clean and no compounds were detected above the detection limits.

SVOA/SW8270 =

**No hits were detected above the assigned detection limits.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 =

**No hits were detected above the assigned detection limits.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
*No hit was detected above the detection limit of 10 mg/kg.
*Raw data/Chromatogram and surrogate recovery was not provided for.
Blanks were clean of any hits above the detection limits.

METALS**SW6010/7000=**

**The Elements that were not detected above the detection limit were Ag, Be, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.
*All met 6 month holding times.
COC information verified.

SAMPLE:**SOIL****021-018 BH 1.5'-2'****Lab ID# 9407566-05****VOA/SW8240 =****No hit was detected above the assigned detection limits.***All met 14 day holding time.***COC information verified.***All surrogate recoveries were within QC limits.***Blanks were clean and no compounds were detected above the detection limits.***SVOA/SW8270 =****Hits on Acenaphthene at 1000 ug/kg, Anthracene at 1900 ug/kg, Benzo(a)Anthracene at 6400 ug/kg, Benzo(b)Fluoranthene at 9300 ug/kg, Benzo(k)fluorathene at 4800 ug/kg, Benzo(a)Pyrene at 5500 ug/kg, Benzo(g,h,i)Perylene at 3500 ug/kg, Carbazole at 1500 ug/kg, Chrysene at 7000 ug/kg, Fluorathene at 14000 ug/kg, Fluorene at 920 ug/kg, Indeno(1,2,3-cd)pyrene at 3900 ug/kg, Phenanthrene at 8800 ug/kg, Pyrene at 12000 ug/kg.***Met 14 extraction holding time and 40 day extract holding time.***COC information verified.***Surrogates were valid and within QC Limits.***Blanks were clean of any hits above the detection limits.***An initial dilution of 2x was performed along with a continuing dilution of 10x due to matrix interference.***PEST/SW8080 =** **No hits were detected above the assigned detection limits.***Met 14 extraction holding time and 40 day extract holding time.***COC information verified.***Surrogates were valid and within QC Limits.***Blanks were clean of any hits above the detection limits.***TPH/USEPA 418.1=****Met 28 day holding time.***COC information verified.***Hit was detected at 125 mg/kg with a detection limit of 10 mg/kg.***Raw data/Chromatogram and surrogate recovery was not provided for.***Blanks were clean of any hits above the detection limits.***METALS****SW6010/7000=****The Elements that were not detected above the detection limit were Ag, As, Be, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.***All met 6 month holding times.***COC information verified.*

SAMPLE:**SOIL****021-018 BH 10'-10.5'****Lab ID# 9407566-06****VOA/SW8240 =****No hit was detected above the assigned detection limits.***All met 14 day holding time.***COC information verified.***All surrogate recoveries were within QC limits.***Blanks were clean and no compounds were detected above the detection limits.***SVOA/SW8270 =****No hits were detected above the assigned detection limits.***Met 14 extraction holding time and 40 day extract holding time.***COC information verified.***Surrogates were valid and within QC Limits.***Blanks were clean of any hits above the detection limits.***PEST/SW8080 =** **No hits were detected above the assigned detection limits.***Met 14 extraction holding time and 40 day extract holding time.***COC information verified.***Surrogates were valid and within QC Limits.***Blanks were clean of any hits above the detection limits.***TPH/USEPA 418.1=****Met 28 day holding time.***COC information verified.***Hit detected at 15 mg/kg that was above the detection limit of 10 mg/kg.***Raw data/Chromatogram and surrogate recovery was not provided for.***Blanks were clean of any hits above the detection limits.***METALS****SW6010/7000=****The Elements that were not detected above the detection limit were Ag, Be, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.***All met 6 month holding times.***COC information verified.*

SAMPLE:**SOIL****021-018 BH 14'-14.5'****Lab ID# 9407566-07****VOA/SW8240 =****No hit was detected above the assigned detection limits.***All met 14 day holding time.***COC information verified.***All surrogate recoveries were within QC limits.***Blanks were clean and no compounds were detected above the detection limits.***SVOA/SW8270 =****No hits were detected above the assigned detection limits.***Met 14 extraction holding time and 40 day extract holding time.***COC information verified.***Surrogates were valid and within QC Limits.***Blanks were clean of any hits above the detection limits.***PEST/SW8080 =** **No hits were detected above the assigned detection limits.***Met 14 extraction holding time and 40 day extract holding time.***COC information verified.***Surrogates were valid and within QC Limits.***Blanks were clean of any hits above the detection limits.***TPH/USEPA 418.1=****Met 28 day holding time.***COC information verified.***Hit detected at 28 mg/kg that was above the detection limit of 10 mg/kg.***Raw data/Chromatogram and surrogate recovery was not provided for.***Blanks were clean of any hits above the detection limits.***METALS****SW6010/7000=****The Elements that were not detected above the detection limit were Ag, Be, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.***All met 6 month holding times.***COC information verified.*

SAMPLE:**SOIL****021-018 BH 14.5'-15'****Lab ID# 9407566-08****VOA/SW8240 =**

**No hit was detected above the assigned detection limits.
*All met 14 day holding time.
*COC information verified.
*All surrogate recoveries were within QC limits.
Blanks were clean and no compounds were detected above the detection limits.

SVOA/SW8270 =

**No hits were detected above the assigned detection limits.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 = **No hits were detected above the assigned detection limits.*

**Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
*Hit detected at 13 mg/kg that was above the detection limit of 10 mg/kg.
*Raw data/Chromatogram and surrogate recovery was not provided for.
Blanks were clean of any hits above the detection limits.

METALS**SW6010/7000=**

**The Elements that were not detected above the detection limit were Ag, As, Be, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.
*All met 6 month holding times.
COC information verified.

SAMPLE:

SOIL

021-019 BH 1.0'-1.5' Lab ID# 9407566-09

***Sample ID need to be corrected to read COC.**

VOA/SW8240 =

***No hit was detected above the assigned detection limits.**

***All met 14 day holding time.**

***COC information verified.**

***All surrogate recoveries were within QC limits.**

***Blanks were clean and no compounds were detected above the detection limits.**

SVOA/SW8270 =

***No hits were detected above the assigned detection limits.**

***Met 14 extraction holding time and 40 day extract holding time.**

***COC information verified.**

***Surrogates were valid and within QC Limits.**

***Blanks were clean of any hits above the detection limits.**

PEST/SW8080 = *No hits were detected above the assigned detection limits.

***Met 14 extraction holding time and 40 day extract holding time.**

***COC information verified.**

***Surrogates were valid and within QC Limits.**

***Blanks were clean of any hits above the detection limits.**

TPH/USEPA 418.1=

***Met 28 day holding time.**

***COC information verified.**

***Hit detected at 25 mg/kg that was above the detection limit of 10 mg/kg.**

***Raw data/Chromatogram and surrogate recovery was not provided for.**

***Blanks were clean of any hits above the detection limits.**

METALS

SW6010/7000=

***The Elements that were not detected above the detection limit were Ag, Be, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.**

***All met 6 month holding times.**

***COC information verified.**

SAMPLE:**SOIL****021-019 BH 6'-6.5'****Lab ID# 9407566-10****VOA/SW8240 =**

**No hit was detected above the assigned detection limits.
*All met 14 day holding time.
*COC information verified.
*All surrogate recoveries were within QC limits.
Blanks were clean and no compounds were detected above the detection limits.

SVOA/SW8270 =

**No hits were detected above the assigned detection limits.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 = **No hits were detected above the assigned detection limits.*

**Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
*Hit detected at 30 mg/kg that was above the detection limit of 10 mg/kg.
*Raw data/Chromatogram and surrogate recovery was not provided for.
Blanks were clean of any hits above the detection limits.

METALS**SW6010/7000=**

**The Elements that were not detected above the detection limit were Ag, Be, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.
*All met 6 month holding times.
COC information verified.

SAMPLE:**SOIL****021-019 BH 10'-10.5'****Lab ID# 9407566-11****VOA/SW8240 =*****Hit on Benzene at 17 ug/kg with a detection limit of 5 ug/kg.*****All met 14 day holding time.*****COC information verified.*****All surrogate recoveries were within QC limits.*****Blanks were clean and no compounds were detected above the detection limits.****SVOA/SW8270 =*****No hits were detected above the assigned detection limits.*****Met 14 extraction holding time and 40 day extract holding time.*****COC information verified.*****Surrogates were valid and within QC Limits.*****Blanks were clean of any hits above the detection limits.****PEST/SW8080 = *No hits were detected above the assigned detection limits.*****Met 14 extraction holding time and 40 day extract holding time.*****COC information verified.*****Surrogates were valid and within QC Limits.*****Blanks were clean of any hits above the detection limits.****TPH/USEPA 418.1=*****Met 28 day holding time.*****COC information verified.*****Hit detected at 20 mg/kg that was above the detection limit of 10 mg/kg.*****Raw data/Chromatogram and surrogate recovery was not provided for.*****Blanks were clean of any hits above the detection limits.****METALS****SW6010/7000=*****The Elements that were not detected above the detection limit were Ag, As, Be, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.*****All met 6 month holding times.*****COC information verified.**

SAMPLE:**SOIL****021-019 BH 14'-14.5'****Lab ID# 9407567-12****VOA/SW8240 =****Hit on Benzene at 8 ug/kg with a detection limit of 5 ug/kg.***All met 14 day holding time.***COC information verified.***All surrogate recoveries were within QC limits.***Blanks were clean and no compounds were detected above the detection limits.***SVOA/SW8270 =****No hits were detected above the assigned detection limits.***Met 14 extraction holding time and 40 day extract holding time.***COC information verified.***Surrogates were valid and within QC Limits.***Blanks were clean of any hits above the detection limits.***PEST/SW8080 =** **No hits were detected above the assigned detection limits.***Met 14 extraction holding time and 40 day extract holding time.***COC information verified.***Surrogates were valid and within QC Limits.***Blanks were clean of any hits above the detection limits.***TPH/USEPA 418.1=****Met 28 day holding time.***COC information verified.***Hit detected at 22 mg/kg that was above the detection limit of 10 mg/kg.***Raw data/Chromatogram and surrogate recovery was not provided for.***Blanks were clean of any hits above the detection limits.***METALS****SW6010/7000=****The Elements that were not detected above the detection limit were Ag, As, Be, Cd, Hg, Sb, Se, and Tl. Other elements were detected above the stated detection limits.***All met 6 month holding times.***COC information verified.*

SAMPLE:**WATER****021-RB 02****Lab ID# 9407567-13****VOA/SW8240 =**

- *No hits were detected above the assigned detection limits.*
- *All met 7 day holding time.*
- *COC information verified.*
- *All surrogate recoveries were within QC limits.*
- *Blanks were clean and no compounds were detected above the detection limits.*

SVOA/SW8270 =

- *No hits were detected above the assigned detection limits.*
- *Met 7 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*

PEST/SW8080 = **No hits were detected above the assigned detection limits.*

- *Met 7 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*
- *No Raw data/Chromatograms were included in the package for review.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *No hit was detected above the detection limit of 0.5 mg/L.*
- *Raw data/Chromatogram and surrogate recovery was not provided for.*
- *Blanks were clean of any hits above the detection limits.*

METALS**SW6010/7000=**

- *The Elements that were not detected above the detection limit were Ag, As, Be, Cd, Hg, Ni, Pb, Sb, and Tl. Other elements were detected above the stated detection limits. Missing Se analysis for this sample; it was not reported on the report form.*
- *All met 6 month holding times.*
- *COC information verified.*

SAMPLE:

WATER

021-TB 03

Lab ID# 9407567-14

VOA/SW8240 =

**No hits were detected above the assigned detection limits.*

**All met 7 day holding time.*

**COC information verified.*

**All surrogate recoveries were within QC limits.*

**Blanks were clean and no compounds were detected above the detection limits.*

SAMPLE:

SOIL

021-018BH 10'-10.5'MS Lab ID# 9407567-15

VOA/SW8240 = **All spiked compounds were detected within spiked amounts. Acetone was detected at 11 ug/kg with the detection limit of 10 ug/kg.
*All met 14 day holding time.
*COC information verified.
*All surrogate recoveries were within QC limits.
Blanks were clean and no compounds were detected above the detection limits.

SVOA/SW8270 = **All spiked compounds were detected within spiked amounts.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 = **All spiked compounds were recovered within spiked amounts.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

TPH/USEPA 418.1= **Met 28 day holding time.
*COC information verified.
*Spiked compound recovered at 15 ug/kg.
*Raw data/Chromatogram and surrogate recovery was not provided for.
Blanks were clean of any hits above the detection limits.

METALS

SW6010/7000= **Thallium was the only element that was not recovered within Spiked amount recovery.
*All met 6 month holding times.
COC information verified.

SAMPLE:

SOIL

021-018BH 10'-10.5'MSD Lab ID# 9407567-16

VOA/SW8240 = **All spiked compounds were detected within spiked amounts. All RPD's were within QC Criteria.
*All met 14 day holding time.
*COC information verified.
*All surrogate recoveries were within QC limits.
Blanks were clean and no compounds were detected above the detection limits.

SVOA/SW8270 = **All spiked compounds were detected within spiked amounts. All RPD's were within QC Criteria.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 = **All spiked compounds were recovered within spiked amounts. All RPD's were within QC Criteria.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

TPH/USEPA 418.1= **Met 28 day holding time.
*COC information verified.
*Spiked compound recovered at 15 ug/kg. RPD was within QC Limits.
*Raw data/Chromatogram and surrogate recovery was not provided for.
Blanks were clean of any hits above the detection limits.

METALS
SW6010/7000= **Thallium was the only element that was not recovered. RPD's were within QC Criteria.
*All met 6 month holding times.
COC information verified.

SAMPLE:

WATER

021-RB 01

Lab ID# 9407473-01

VOA/SW8240 =

**No hits were detected above the assigned detection limits.
*All met 7 day holding time.
*COC information verified.
*All surrogate recoveries were within QC limits.
Blanks were clean and no compounds were detected above the detection limits.

SVOA/SW8270 =

**No hits were detected above the assigned detection limits.
*Met 7 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 = **No hits were detected above the assigned detection limits.*

**Met 7 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
*Blanks were clean of any hits above the detection limits.
No Raw data/Chromatograms were included in the package for review.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
*No hit was detected above the detection limit of 0.5 mg/L.
*Raw data/Chromatogram and surrogate recovery was not provided for.
Blanks were clean of any hits above the detection limits.

METALS

SW6010/7000=

**The Elements that were not detected above the detection limit were Ag, Al, As, Be, Cr, Cu, Cd, Hg, Ni, Pb, Se, Sb, and Tl. Zn is the other element that was detected above the stated detection limits.
*All met 6 month holding times.
COC information verified.

SAMPLE:

WATER

021-TB 02

Lab ID# 9407473-02

VOA/SW8240 =

**No hits were detected above the assigned detection limits.*

**All met 7 day holding time.*

**COC information verified.*

**All surrogate recoveries were within QC limits.*

**Blanks were clean and no compounds were detected above the detection limits.*

SAMPLE:**SOIL****021-021 BH 1.5'-2'****Lab ID# 9407473-03****VOA/SW8240 =*****No hits above the assigned detection limits.*****All met 14 day holding time.*****COC information verified.*****All surrogate recoveries were within QC limits.*****Blanks were clean and no compounds were detected above the detection limits.****SVOA/SW8270 =*****No hits were detected above the assigned detection limits.*****Met 14 extraction holding time and 40 day extract holding time.*****COC information verified.*****Surrogates were valid and within QC Limits.*****Blanks were clean of any hits above the detection limits.****PEST/SW8080 = *No hits were detected above the assigned detection limits.*****Met 14 extraction holding time and 40 day extract holding time.*****COC information verified.*****Surrogates were valid and within QC Limits.*****Blanks were clean of any hits above the detection limits.****TPH/USEPA 418.1=*****Met 28 day holding time.*****COC information verified.*****Hit detected at 140 mg/kg that was above the detection limit of 10 mg/kg.*****Raw data/Chromatogram and surrogate recovery was not provided for.*****Blanks were clean of any hits above the detection limits.****METALS****SW6010/7000=*****The Elements that were not detected above the detection limit were Ag, Be, Sb, Se, and Tl. Other elements were detected above the stated detection limits. Hg reported value was a date and not a result. Please correct.*****All met 6 month holding times.*****COC information verified.**

SAMPLE:**SOIL****021-021 BH 11'-11.5'****Lab ID# 9407473-04****VOA/SW8240 =**

**No hits above the assigned detection limits.
*All met 14 day holding time.
*COC information verified.
*All surrogate recoveries were within QC limits.
Blanks were clean and no compounds were detected above the detection limits.

SVOA/SW8270 =

**No hits were detected above the assigned detection limits.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 = **No hits were detected above the assigned detection limits.*

**Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
*Hit detected at 21 mg/kg that was above the detection limit of 10 mg/kg.
*Raw data/Chromatogram and surrogate recovery was not provided for.
Blanks were clean of any hits above the detection limits.

METALS**SW6010/7000=**

**The Elements that were not detected above the detection limit were Ag, Be, Sb, Se, and Tl. Other elements were detected above the stated detection limits. Hg reported value was a date and not a result. Please correct.
*All met 6 month holding times.
COC information verified.

SAMPLE:**SOIL****021-021 BH 14'-14.5'****Lab ID# 9407473-05****VOA/SW8240 =****Hits on Benzene at 47 ug/kg, Ethylbenzene at 8 ug/kg, Toluene at 19 ug/kg, and Total Xylenes at 34 ug/kg.***All met 14 day holding time.***COC information verified.***All surrogate recoveries were within QC limits.***Blanks were clean and no compounds were detected above the detection limits.***SVOA/SW8270 =****No hits were detected above the assigned detection limits.***Met 14 extraction holding time and 40 day extract holding time.***COC information verified.***Surrogates were valid and within QC Limits.***Blanks were clean of any hits above the detection limits.***PEST/SW8080 =** **No hits were detected above the assigned detection limits.***Met 14 extraction holding time and 40 day extract holding time.***COC information verified.***Surrogates were valid and within QC Limits.***Blanks were clean of any hits above the detection limits.***TPH/USEPA 418.1=****Met 28 day holding time.***COC information verified.***Hit detected at 10 mg/kg that was above the detection limit of 10 mg/kg.***Raw data/Chromatogram and surrogate recovery was not provided for.***Blanks were clean of any hits above the detection limits.***METALS****SW6010/7000=****The Elements that were not detected above the detection limit were Ag, Be, Sb, Se, and Tl. Other elements were detected above the stated detection limits. Hg reported value was a date and not a result. Please correct.***All met 6 month holding times.***COC information verified.*

SAMPLE:**SOIL****021-024 BH 1.5'-2'****Lab ID# 9407473-06****VOA/SW8240 =**

**No hits were detected above the assigned detection limits.
*All met 14 day holding time.
*COC information verified.
*All surrogate recoveries were within QC limits.
Blanks were clean and no compounds were detected above the detection limits.

SVOA/SW8270 =

**No hits were detected above the assigned detection limits.
*Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 = **No hits were detected above the assigned detection limits.*

**Met 14 extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
*Hit detected at 14 mg/kg that was above the detection limit of 10 mg/kg.
*Raw data/Chromatogram and surrogate recovery was not provided for.
Blanks were clean of any hits above the detection limits.

METALS**SW6010/7000=**

**The Elements that were not detected above the detection limit were Ag, Be, Sb, Se, and Tl. Other elements were detected above the stated detection limits. Hg reported value was a date and not a result. Please correct.
*All met 6 month holding times.
COC information verified.

SAMPLE:**SOIL****021-024 BH 10'-10.5'****Lab ID# 9407473-07****VOA/SW8240 =*****Hit on Benzene at 640 ug/kg, Ethylbenzene at 21 ug/kg, and Toluene at 8 ug/kg.*****All met 14 day holding time.*****COC information verified.*****All surrogate recoveries were within QC limits.*****Blanks were clean and no compounds were detected above the detection limits.****SVOA/SW8270 =*****No hits were detected above the assigned detection limits.*****Met 14 extraction holding time and 40 day extract holding time.*****COC information verified.*****Surrogates were valid and within QC Limits.*****Blanks were clean of any hits above the detection limits.****PEST/SW8080 = *No hits were detected above the assigned detection limits.*****Met 14 extraction holding time and 40 day extract holding time.*****COC information verified.*****Surrogates were valid and within QC Limits.*****Blanks were clean of any hits above the detection limits.****TPH/USEPA 418.1=*****Met 28 day holding time.*****COC information verified.*****Hit detected at 18 mg/kg that was above the detection limit of 10 mg/kg.*****Raw data/Chromatogram and surrogate recovery was not provided for.*****Blanks were clean of any hits above the detection limits.****METALS****SW6010/7000=*****The Elements that were not detected above the detection limit were Ag, As, Be, Sb, Se, and Tl. Other elements were detected above the stated detection limits. Hg reported value was a date and not a result. Please correct.*****All met 6 month holding times.*****COC information verified.**

SAMPLE:**SOIL****021-024 BH 16'-16.5'**

Lab ID# 9407473-08

VOA/SW8240 =

Hit on Benzene at 330 ug/kg, 1,2-Dichloroethane at 7 ug/kg, and Ethylbenzene 61 ug/kg.*All met 14 day holding time.***COC information verified.***All surrogate recoveries were within QC limits.***Blanks were clean and no compounds were detected above the detection limits.*

SVOA/SW8270 =

No hits were detected above the assigned detection limits.*Met 14 extraction holding time and 40 day extract holding time.***COC information verified.***Surrogates were valid and within QC Limits.***Blanks were clean of any hits above the detection limits.*PEST/SW8080 = **No hits were detected above the assigned detection limits.***Met 14 extraction holding time and 40 day extract holding time.***COC information verified.***Surrogates were valid and within QC Limits.***Blanks were clean of any hits above the detection limits.*

TPH/USEPA 418.1=

Met 28 day holding time.*COC information verified.***No hit was detected above the detection limit of 10 mg/kg.***Raw data/Chromatogram and surrogate recovery was not provided for.***Blanks were clean of any hits above the detection limits.***METALS**

SW6010/7000=

The Elements that were not detected above the detection limit were Ag, As, Be, Sb, Se, and Tl. Other elements were detected above the stated detection limits. Hg reported value was a date and not a result. Please correct.*All met 6 month holding times.***COC information verified.*

SAMPLE:**SOIL****021-020 BH 1.5'-2'****Lab ID# 9407473-09****VOA/SW8240 =*****No hits above the assigned detection limits.*****All met 14 day holding time.*****COC information verified.*****All surrogate recoveries were within QC limits.*****Blanks were clean and no compounds were detected above the detection limits.****SVOA/SW8270 =*****No hits were detected above the assigned detection limits.*****Met 14 extraction holding time and 40 day extract holding time.*****COC information verified.*****Surrogates were valid and within QC Limits.*****Blanks were clean of any hits above the detection limits.****PEST/SW8080 = *No hits were detected above the assigned detection limits.*****Met 14 extraction holding time and 40 day extract holding time.*****COC information verified.*****Surrogates were valid and within QC Limits.*****Blanks were clean of any hits above the detection limits.****TPH/USEPA 418.1=*****Met 28 day holding time.*****COC information verified.*****Hit was detected at 13 mg/kg with the detection limit of 10 mg/kg.*****Raw data/Chromatogram and surrogate recovery was not provided for.*****Blanks were clean of any hits above the detection limits.****METALS****SW6010/7000=*****The Elements that were not detected above the detection limit were Ag, As, Be, Sb, Se, and Tl. Other elements were detected above the stated detection limits. Hg reported value was a date and not a result. Please correct.*****All met 6 month holding times.*****COC information verified.**

SAMPLE:**SOIL****021-020 BH 6'-6.5'****Lab ID# 9407473-10****VOA/SW8240 =*****Hits on Acetone at 85 ug/kg, Benzene at 140 ug/kg, 2-Butanone at 31 ug/kg, and Toluene at 14 ug/kg.*****All met 14 day holding time.*****COC information verified.*****All surrogate recoveries were within QC limits.*****Blanks were clean and no compounds were detected above the detection limits.****SVOA/SW8270 =*****No hits were detected above the assigned detection limits.*****Met 14 extraction holding time and 40 day extract holding time.*****COC information verified.*****Surrogates were valid and within QC Limits.*****Blanks were clean of any hits above the detection limits.****PEST/SW8080 = *No hits were detected above the assigned detection limits.*****Met 14 extraction holding time and 40 day extract holding time.*****COC information verified.*****Surrogates were valid and within QC Limits.*****Blanks were clean of any hits above the detection limits.*****No Raw Data/Chromatograms were provided for this analysis.****TPH/USEPA 418.1=*****Met 28 day holding time.*****COC information verified.*****Hit was detected at 50 mg/kg with the detection limit of 10 mg/kg.*****Raw data/Chromatogram and surrogate recovery was not provided for.*****Blanks were clean of any hits above the detection limits.****METALS****SW6010/7000=*****The Elements that were not detected above the detection limit were Ag, As, Be, Sb, Se, and Tl. Other elements were detected above the stated detection limits. Hg reported value was a date and not a result. Please correct.*****All met 6 month holding times.*****COC information verified.**

SAMPLE:**SOIL****021-020 BH 14'-14.5'****Lab ID# 9407473-11****VOA/SW8240 =**

- *Hit on Acetone at 13 ug/kg with a detection limit of 10 ug/kg.*
- *All met 14 day holding time.*
- *COC information verified.*
- *All surrogate recoveries were within QC limits.*
- *Blanks were clean and no compounds were detected above the detection limits.*

SVOA/SW8270 =

- *No hits were detected above the assigned detection limits.*
- *Met 14 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*

PEST/SW8080 = **No hits were detected above the assigned detection limits.*

- *Met 14 extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *Hit was detected at 21 mg/kg with the detection limit of 10 mg/kg.*
- *Raw data/Chromatogram and surrogate recovery was not provided for.*
- *Blanks were clean of any hits above the detection limits.*

METALS**SW6010/7000=**

- *The Elements that were not detected above the detection limit were Ag, As, Be, Sb, Se, and Tl. Other elements were detected above the stated detection limits. Hg reported value was a date and not a result. Please correct.*
- *All met 6 month holding times.*
- *COC information verified.*

SAMPLE:

WATER

021-FB 01

Lab ID# 9407999-01

METALS

SW6010/7000=

**All Elements were not detected above the assigned detection limits.*

**All met 6 month holding times.*

**COC information verified.*

*****Volatiles, Semivolatiles, Pesticides/PCB's, and TPH analyses were canceled due to the receiving temperature of the samples being less than 4 degrees celsius.***

SAMPLE:

WATER

021-RB 04

Lab ID# 9407999-02

METALS

SW6010/7000=

**Cadmium and Zinc were elements detected above the detection limits. All other elements were not detected above the assigned detection limits.*

**All met 6 month holding times.*

**COC information verified.*

*****Volatiles, Semivolatiles, Pesticides/PCB's, and TPH analyses were canceled due to the receiving temperature of the samples being less than 4 degrees celsius.***

SAMPLE:

WATER

021-004MW-GW 01

Lab ID# 9407999-03

METALS

SW6010/7000=

**Al, Cd, Cr, Cu, Ni, and Zn were elements detected above the detection limits. All other elements were not detected above the assigned detection limits.*

**All met 6 month holding times.*

**COC information verified.*

*****Volatiles, Semivolatiles, Pesticides/PCB's, and TPH analyses were canceled due to the receiving temperature of the samples being less than 4 degrees celsius.***

SAMPLE:

WATER

021-010MW-GW 01

Lab ID# 9407999-05

METALS

SW6010/7000=

**Al, Cd, Cr, Cu, Ni, and Zn were elements detected above the detection limits. All other elements were not detected above the assigned detection limits.*

**All met 6 month holding times.*

**COC information verified.*

*****Volatiles, Semivolatiles, Pesticides/PCB's, and TPH analyses were canceled due to the receiving temperature of the samples being less than 4 degrees celsius.***

SAMPLE:

WATER

021-010AMW-GW 01 Lab ID# 9407999-06

METALS

SW6010/7000=

**Al, Ni, and Zn were elements detected above the detection limits. All other elements were not detected above the assigned detection limits.*

**All met 6 month holding times.*

**COC information verified.*

*****Volatiles, Semivolatiles, Pesticides/PCB's, and TPH analyses were canceled due to the receiving temperature of the samples being less than 4 degrees celsius.***

SAMPLE:

WATER

021-014MW-GW 01

Lab ID# 9407999-07

METALS

SW6010/7000=

**Al, Cd, Cr, Cu, Ni, and Zn were elements detected above the detection limits. All other elements were not detected above the assigned detection limits.*

**All met 6 month holding times.*

**COC information verified.*

*****Volatiles, Semivolatiles, Pesticides/PCB's, and TPH analyses were canceled due to the receiving temperature of the samples being less than 4 degrees celsius.***

SAMPLE:

WATER

021-026MW-GW 01

Lab ID# 9407999-08

METALS

SW6010/7000=

**Al, Cd, Cr, Cu, Ni, and Zn were elements detected above the detection limits. All other elements were not detected above the assigned detection limits.*

**All met 6 month holding times.*

**COC information verified.*

*****Volatiles, Semivolatiles, Pesticides/PCB's, and TPH analyses were canceled due to the receiving temperature of the samples being less than 4 degrees celsius.***

SAMPLE:

WATER

021-TB 05

Lab ID# 9407999-04

VOA/SW8240 =

****Analysis was canceled due to temperature warmer than 4 degrees celsius
on sample receipt.***

SAMPLE:

SOIL

021-004 SD

Lab ID# 9407998-10

METALS

SW6010/7000=

**Al, Cd, Cr, Cu, Pb and Zn were elements detected above the detection limits. All other elements were not detected above the assigned detection limits.*

**All met 6 month holding times.*

**COC information verified.*

*****Volatiles, Semivolatiles, Pesticides/PCB's, and TPH analyses were canceled due to the receiving temperature of the samples being less than 4 degrees celsius.***

SAMPLE:

SOIL

021-005 SD

Lab ID# 9407998-11

METALS

SW6010/7000=

**Al, Be, Cd, Cr, Cu, Ni, Pb and Zn were elements detected above the detection limits. All other elements were not detected above the assigned detection limits.*

**All met 6 month holding times.*

**COC information verified.*

*****Volatiles, Semivolatiles, Pesticides/PCB's, and TPH analyses were canceled due to the receiving temperature of the samples being less than 4 degrees celsius.***

SAMPLE:

SOIL

021-005ASD

Lab ID# 9407998-12

METALS

SW6010/7000=

**Al, Ar, Be, Cr, Cu, Ni, Pb and Zn were elements detected above the detection limits. All other elements were not detected above the assigned detection limits.*

**All met 6 month holding times.*

**COC information verified.*

*****Volatiles, Semivolatiles, Pesticides/PCB's, and TPH analyses were canceled due to the receiving temperature of the samples being less than 4 degrees celsius.***

SAMPLE:

SOIL

021-006 SD

Lab ID# 9407998-13

METALS

SW6010/7000=

**Al, Ar, Be, Cr, Cu, Ni, Pb and Zn were elements detected above the detection limits. All other elements were not detected above the assigned detection limits.*

**All met 6 month holding times.*

**COC information verified.*

*****Volatiles, Semivolatiles, Pesticides/PCB's, and TPH analyses were canceled due to the receiving temperature of the samples being less than 4 degrees celsius.***

SAMPLE:

SOIL

021-006 SD MS

Lab ID# 9407998-14

METALS

SW6010/7000=

**All spiked elements were detected within QC Limits.*

**All met 6 month holding times.*

**COC information verified.*

*****Volatiles, Semivolatiles, Pesticides/PCB's, and TPH analyses were canceled due to the receiving temperature of the samples being less than 4 degrees celsius.***

SAMPLE:

SOIL

021-006 SD MSD

Lab ID# 9407998-15

METALS

SW6010/7000=

**All spiked elements were detected within QC Limits. RPD's were within QC Limits except for Al, Cu, and Zn.*

**All met 6 month holding times.*

**COC information verified.*

*****Volatiles, Semivolatiles, Pesticides/PCB's, and TPH analyses were canceled due to the receiving temperature of the samples being less than 4 degrees celsius.***

SAMPLE:

SOIL

021-007 SD

Lab ID# 9407A02-01

METALS

SW6010/7000=

**Al, Ar, Be, Cd, Cr, Cu, Ni, Pb and Zn were elements detected above the detection limits. All other elements were not detected above the assigned detection limits.*

**All met 6 month holding times.*

**COC information verified.*

*****Volatiles, Semivolatiles, Pesticides/PCB's, and TPH analyses were canceled due to the receiving temperature of the samples being less than 4 degrees celsius.***

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**Duluth Air National Guard Site Investigation
Duluth, Minnesota 1308-101-S002
Southern Petroleum Laboratories, Houston, Texas
Data Validation Brief Summary
Re-Sampling Event**

SAMPLE:

SEDIMENT

021-006SD2

Lab ID# 9410146-01

VOA/SW8240 =

**Hit on Methylene chloride was detected at 6 ug/kg with a detection limit of 5 ug/kg.
*Met 14 day holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

SVOA/SW8270 =

**Hits on Benzo(a)pyrene at 3000 ug/kg, Di-n-butylphthalate at 330 ug/kg, and Bis(2-Ethylhexyl)phthalate at 1600 ug/kg were detected above the detection limit of 330 ug/kg.
*Met 7 day extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 = **No hits were detected above the assigned detection limits.*

**Met 7 day extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
Hit was detected at 20 mg/kg with a detection limit of 10 mg/kg.

SAMPLE:**SEDIMENT**

021-005SD2

Lab ID# 9410146-02

VOA/SW8240 =

**Hits on Benzene at 5 ug/kg and Chlorobenzene at 5 ug/kg with detection limits of 5 ug/kg. Methylene Chloride was detected at 400 ug/kg with a detection limit of 25 ug/kg.*

**Met 14 day holding time.*

**COC information verified.*

**Surrogates were valid and within QC Limits.*

**Blanks were clean of any hits above the detection limits.*

SVOA/SW8270 =

**Hits on Benzo(a)pyrene at 770 ug/kg, Bis(2-Ethylhexyl)phthalate at 470, and Naphthalene at 520 ug/kg were detected above the detection limit of 330 ug/kg.*

**Met 7 day extraction holding time and 40 day extract holding time.*

**COC information verified.*

**Surrogates were valid and within QC Limits.*

**Blanks were clean of any hits above the detection limits.*

*PEST/SW8080 = *No hits were detected above the assigned detection limits.*

**Met 7 day extraction holding time and 40 day extract holding time.*

**COC information verified.*

**Surrogates were valid and within QC Limits.*

**Blanks were clean of any hits above the detection limits.*

TPH/USEPA 418.1=

**Met 28 day holding time.*

**COC information verified.*

**Hit was detected at 230 mg/kg with a detection limit of 10 mg/kg.*

SAMPLE:**SEDIMENT****021-007ASD2**

Lab ID# 9410146-03

VOA/SW8240 =

**Hits on Methylene Chloride at 11 ug/kg with detection limits of 5 ug/kg.
Acetone was detected at 11 ug/kg with a detection limit of 10 ug/kg.
*Met 14 day holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

SVOA/SW8270 =

**No hits were detected above the assigned detection limits.
*Met 7 day extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 = **No hits were detected above the assigned detection limits.*

**Met 7 day extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
Hit was detected at 120 mg/kg with a detection limit of 10 mg/kg.

SAMPLE:**SEDIMENT****021-007SD2****Lab ID# 9410146-04****VOA/SW8240 =**

**Hits on Methylene Chloride at 23 ug/kg with detection limits of 5 ug/kg.
Acetone was detected at 12 ug/kg with a detection limit of 10 ug/kg.
*Met 14 day holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

SVOA/SW8270 =

**No hits were detected above the assigned detection limits.
*Met 7 day extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 = **No hits were detected above the assigned detection limits.*

**Met 7 day extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
Hit was detected at 74 mg/kg with a detection limit of 10 mg/kg.

SAMPLE:**SEDIMENT****021-004SD2****Lab ID# 9410146-05****VOA/SW8240 =**

**Hits on Methylene Chloride at 13 ug/kg with detection limits of 5 ug/kg.
Acetone was detected at 35 ug/kg with a detection limit of 10 ug/kg.*

**Met 14 day holding time.*

**COC information verified.*

**Surrogates were valid and within QC Limits.*

**Blanks were clean of any hits above the detection limits.*

SVOA/SW8270 =

**Hit on Benzo(a)pyrene at 530 ug/kg with a detection limit of 330 ug/kg.*

**Met 7 day extraction holding time and 40 day extract holding time.*

**COC information verified.*

**Surrogates were valid and within QC Limits.*

**Blanks were clean of any hits above the detection limits.*

PEST/SW8080 = **No hits were detected above the assigned detection limits.*

**Met 7 day extraction holding time and 40 day extract holding time.*

**COC information verified.*

**Surrogates were valid and within QC Limits.*

**Blanks were clean of any hits above the detection limits.*

TPH/USEPA 418.1=

**Met 28 day holding time.*

**COC information verified.*

**Hit was detected at 450 mg/kg with a detection limit of 10 mg/kg.*

SAMPLE:**SEDIMENT****021-004SD2 MS****Lab ID# 9410146-06****VOA/SW8240 =**

- *All spiked amounts were recovered within QC Limits.*
- *Met 14 day holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*

SVOA/SW8270 =

- *All spiked amounts were recovered within QC Limits.*
- *Met 7 day extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*

PEST/SW8080 = **All spiked amounts were recovered within QC Limits.*

- *Met 7 day extraction holding time and 40 day extract holding time.*
- *COC information verified.*
- *Surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*

TPH/USEPA 418.1=

- *Met 28 day holding time.*
- *COC information verified.*
- *Spiked recovery was detected at 530 mg/kg with a spike of 500 mg/kg.*

SAMPLE:**SEDIMENT****021-004SD2 MSD****Lab ID# 9410146-07****VOA/SW8240 =****All spiked amounts were recovered within QC Limits. RPD's were within QC Range.***Met 14 day holding time.***COC information verified.***Surrogates were valid and within QC Limits.***Blanks were clean of any hits above the detection limits.***SVOA/SW8270 =****All spiked amounts were recovered within QC Limits. RPD's were within QC Range.***Met 7 day extraction holding time and 40 day extract holding time.***COC information verified.***Surrogates were valid and within QC Limits.***Blanks were clean of any hits above the detection limits.***PEST/SW8080 =** **All spiked amounts were recovered within QC Limits. RPD's were within QC Range.***Met 7 day extraction holding time and 40 day extract holding time.***COC information verified.***Surrogates were valid and within QC Limits.***Blanks were clean of any hits above the detection limits.***TPH/USEPA 418.1=****Met 28 day holding time.***COC information verified.***Spiked recovery was detected at 530 mg/kg with a spike of 500 mg/kg. RPD's were within QC Range.*

SAMPLE:

SOIL

018-007BH2 1.3'-1.7'

Lab ID# 9410180-01

VOA/SW8240 =

**No hits were detected above the assigned detection limits.*

**Met 14 day holding time.*

**COC information verified.*

**One of the three surrogates was above and outside QC Limits due to coeluting interference. No re-analysis was performed.*

**Blanks were clean of any hits above the detection limits.*

SAMPLE:

SOIL

018-007BH2 1.7'-2.1'

Lab ID# 9410180-02

VOA/SW8240 =

****No hits were detected above the assigned detection limits.***

****Met 14 day holding time.***

****COC information verified.***

****All surrogates were valid and within QC Limits.***

****Blanks were clean of any hits above the detection limits.***

SAMPLE:

SOIL

018-007BH2 2.1'-2.5'

Lab ID# 9410180-03

VOA/SW8240 =

****Hit on Total Xylenes at 74 ug/kg with a detection limit of 25 ug/kg.***

****Met 14 day holding time.***

****COC information verified.***

****All surrogates were valid and within QC Limits.***

****Blanks were clean of any hits above the detection limits.***

SAMPLE:

SOIL

018-006BH2 0.8'-1.3'

Lab ID# 9410180-04

VOA/SW8240 =

**No hits were detected above the assigned detection limits.*

**Met 14 day holding time.*

**COC information verified.*

**All surrogates were valid and within QC Limits.*

**Blanks were clean of any hits above the detection limits.*

SAMPLE:

SOIL

018-006BH2 1.3'-1.7'

Lab ID# 9410180-05

VOA/SW8240 =

- *No hits were detected above the assigned detection limits.*
- *Met 14 day holding time.*
- *COC information verified.*
- *All surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*

SAMPLE:

SOIL

018-006BH2 2.1'-2.5'

Lab ID# 9410180-06

VOA/SW8240 =

**No hits were detected above the assigned detection limits.*

**Met 14 day holding time.*

**COC information verified.*

**All surrogates were valid and within QC Limits.*

**Blanks were clean of any hits above the detection limits.*

SAMPLE:

SOIL

018-RB02

Lab ID# 9410180-07

VOA/SW8240 =

****No hits were detected above the assigned detection limits.***

****Met 14 day holding time.***

****COC information verified.***

****All surrogates were valid and within QC Limits.***

****Blanks were clean of any hits above the detection limits.***

SAMPLE:

WATER

021-RB07

Lab ID# 9410180-08

VOA/SW8240 =

**No hits were detected above the assigned detection limits.
*Met 14 day holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

SVOA/SW8270 =

**Hit on Bis(2-Ethylhexyl)phthalate at 8 ug/l with a detection limit of 5 ug/l.
*Met 7 day extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 = **No hits were detected above the assigned detection limits.*

**Met 7 day extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
*Blanks were clean of any hits above the detection limits.
No raw data information accompanied the Report Forms.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
No hit was detected above the detection limit of 0.5 mg/l.

SAMPLE:

SOIL

018-006BH2 0.8-1.3 MS Lab ID# 9410180-11

VOA/SW8240 =

- *All spiked recoveries were recovered within QC Limits.*
- *Met 14 day holding time.*
- *COC information verified.*
- *All surrogates were valid and within QC Limits.*
- *Blanks were clean of any hits above the detection limits.*

SAMPLE:

SOIL

018-006BH2 0.8-1.3 MSD Lab ID# 9410180-12

VOA/SW8240 =

****All spiked recoveries were recovered within QC Limits. All RPD's were within QC Range.***

****Met 14 day holding time.***

****COC information verified.***

****All surrogates were valid and within QC Limits.***

****Blanks were clean of any hits above the detection limits.***

SAMPLE:

SOIL

017-010BH2 0.5-1.0

Lab ID# 9410269-01

*****Date sample on the report form needs to be corrected from 10/4/94 to 10/6/94.**

SVOA/SW8270 =

***No hits were detected above the detection limits assigned for all compounds.**

***Met 7 day extraction holding time and 40 day extract holding time.**

***COC information verified.**

***Surrogates were valid and within QC Limits.**

***Blanks were clean of any hits above the detection limits.**

TPH/USEPA 418.1=

***Met 28 day holding time.**

***COC information verified.**

***Hit was detected at 180 mg/kg with a detection limit of 10 mg/kg.**

SAMPLE:

WATER

021-009MW-GW02

Lab ID# 9410269-02

VOA/SW8240 =

**No hits were detected above the assigned detection limits.*

**Met 14 day holding time.*

**COC information verified.*

**Surrogates were valid and within QC Limits.*

**Blanks were clean of any hits above the detection limits.*

SAMPLE:

WATER

021-014MW-GW02

Lab ID# 9410269-03

VOA/SW8240 =

**Hit was detected on Trichloroethane at 68 ug/l with a detection limit of 5 ug/l.*

**Met 14 day holding time.*

**COC information verified.*

**Surrogates were valid and within QC Limits.*

**Blanks were clean of any hits above the detection limits.*

SAMPLE:

WATER

021-010MW-GW02

Lab ID# 9410269-04

VOA/SW8240 =

**No hits were detected above the assigned detection limits for all compounds.*

**Met 14 day holding time.*

**COC information verified.*

**Surrogates were valid and within QC Limits.*

**Blanks were clean of any hits above the detection limits.*

SAMPLE:

WATER

021-010AMW-GW02

Lab ID# 9410269-05

VOA/SW8240 =

**No hits were detected above the assigned detection limits for all compounds.*

**Met 14 day holding time.*

**COC information verified.*

**Surrogates were valid and within QC Limits.*

**Blanks were clean of any hits above the detection limits.*

SAMPLE:

WATER

021-026MW-GW03

Lab ID# 9410269-06

VOA/SW8240 =

**No hits were detected above the assigned detection limits for all compounds.*

**Met 14 day holding time.*

**COC information verified.*

**Surrogates were valid and within QC Limits.*

**Blanks were clean of any hits above the detection limits.*

SAMPLE:

WATER

021-RB08

Lab ID# 9410269-07

VOA/SW8240 =

****Hit was detected on 2-Butanone at 22 ug/l with a detection limit of 20 ug/l.***

****Met 14 day holding time.***

****COC information verified.***

****Surrogates were valid and within QC Limits.***

****Blanks were clean of any hits above the detection limits.***

SAMPLE:

WATER

DANGB-FB01

Lab ID# 9410269-08

VOA/SW8240 =

**Hit on 2-Butanone was detected at 22 ug/l with a detection limit of 20 ug/l.
*Met 14 day holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

SVOA/SW8270 =

**No hits above the assigned detection limits for all compounds.
*Met 7 day extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 = **No hits were detected above the assigned detection limits.*

**Met 7 day extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
*Blanks were clean of any hits above the detection limits.
Raw data did not accompany the Report Form.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
No hit was detected above the detection limit of 0.5 mg/l.

SAMPLE:**WATER****DANGB-FB02**

Lab ID# 9410269-09

VOA/SW8240 =

**Hit on Chloroform was detected at 12 ug/l with a detection limit of 5 ug/l.
*Met 14 day holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

SVOA/SW8270 =

**No hits above the assigned detection limits for all compounds.
*Met 7 day extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

PEST/SW8080 = **No hits were detected above the assigned detection limits.*

**Met 7 day extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
*Blanks were clean of any hits above the detection limits.
Raw data did not accompany the Report Form.

TPH/USEPA 418.1=

**Met 28 day holding time.
*COC information verified.
No hit was detected above the detection limit of 0.5 mg/l.

SAMPLE:

WATER

TRIP BLANK

Lab ID# 9410146-08

VOA/SW8240 =

**No hits were detected above the assigned detection limits.
*Met 14 day extraction holding time and 40 day extract holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

SAMPLE:

WATER

TRIP BLANK

Lab ID# 9410180-10

VOA/SW8240 =

**No hits were detected above the assigned detection limits.
*Met 14 day extraction holding time and 40 day extract holding time.
*COC information verified.
*All surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

SAMPLE:

WATER

TRIP BLANK

Lab ID# 9410269-10

VOA/SW8240 =

**No hits were detected above the assigned detection limits for all compounds.
*Met 14 day holding time.
*COC information verified.
*Surrogates were valid and within QC Limits.
Blanks were clean of any hits above the detection limits.

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OPERATIONAL TECHNOLOGIES
C O R P O R A T I O N

**Minnesota Air National Guard Site Investigation
Duluth, Minnesota 1315-213
Lake Superior Laboratories
Duluth, Minnesota
Duluth RFI Data Evaluation Review**

SAMPLE:

SOIL

017-022BH 2'-2.5'

Lab ID# 2575-95LS

Date Sampled: 05/17/95

Date Received: 05/17/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

017-023BH 2'-2.5'

Lab ID# 2576-95LS

Date Sampled:

05/17/95

Date Received: 05/17/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

017-023BH 5'-5.6'

Lab ID# 2577-95LS

Date Sampled: 05/17/95

Date Received: 05/17/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

017-024BH 1.5'-2'

Lab ID# 2578-95LS

Date Sampled: 05/17/95

Date Received: 05/17/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *Hit was detected at 13.4 mg/kg above the assigned detection limit of 4 mg/kg.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

017-024BH 5'-5.5'

Lab ID# 2579-95LS

Date Sampled: 05/17/95

Date Received: 05/17/95

Diesel Range Organics/WDNR Method

SW846-8015 =

*Hit was detected at 70.6 mg/kg above the assigned detection limit of 4 mg/kg.

*Met 14 day analysis holding time.

*COC information verified.

*All initial and continuing calibrations were within acceptable QC Limits.

*All surrogate recoveries were within acceptable QC limits.

*Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

*No hits were detected above the assigned detection limits.

*Met 14 day analysis holding time.

*COC information verified.

*All initial and continuing calibrations were within acceptable QC Limits.

*All surrogate recoveries were within acceptable QC limits.

*Blanks were clean of any contamination.

SAMPLE:

SOIL

017-025BH 1.5'-2'

Lab ID# 2580-95LS

Date Sampled: 05/17/95

Date Received: 05/17/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *Hit was detected at 144 mg/kg above the assigned detection limit of 4 mg/kg.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

017-025BH 5.5' -6'

Lab ID# 2581-95LS

Date Sampled: 05/17/95

Date Received: 05/17/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *Hit was detected at 9.92 mg/kg above the assigned detection limit of 4 mg/kg.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

017-028BH 2'-2.5'

Lab ID# 2582-95LS

Date Sampled: 05/17/95

Date Received: 05/17/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

017-028BH 5.5'-6'

Lab ID# 2583-95LS

Date Sampled: 05/17/95

Date Received: 05/17/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

WATER

017-001RB

Lab ID# 2584-95LS

Date Sampled: 05/17/95

Date Received: 05/17/95

Diesel Range Organics/WDNR Method

SW846-8015 =

*No analysis was performed as requested per Chain of Custody. Laboratory overlooked the analysis requested.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

021-026BH 2'-2.5'

Lab ID# 2537-95LS

Date Sampled:

05/16/95

Date Received: 05/16/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *Hit was detected at 88 mg/kg above the assigned detection limit of 4 mg/kg.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

021-026BH 9'-9.5'

Lab ID# 2538-95LS

Date Sampled: 05/16/95

Date Received: 05/16/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *Hit was detected at 8.70 mg/kg above the assigned detection limit of 4 mg/kg.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

021-027BH 2'-2.5'

Lab ID# 2539-95LS

Date Sampled:

05/16/95

Date Received: 05/16/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *Hit was detected at 27.7 mg/kg above the assigned detection limit of 4 mg/kg.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

021-027BH 8'-9'

Lab ID# 2540-95LS

Date Sampled:

05/16/95

Date Received: 05/16/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *Hit was detected at 29.1 mg/kg above the assigned detection limit of 4 mg/kg.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

021-027BH 9'-10'

Lab ID# 2541-95LS

Date Sampled: 05/16/95

Date Received: 05/16/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *Hit was detected at 5.60 mg/kg above the assigned detection limit of 4 mg/kg.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

021-028BH 2'-2.5'

Lab ID# 2542-95LS

Date Sampled: 05/16/95

Date Received: 05/16/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

021-028BH 1.5'-2'

Lab ID# 2543-95LS

Date Sampled: 05/16/95

Date Received: 05/16/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *Hit was detected at 4.42 mg/kg above the assigned detection limit of 4 mg/kg.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

021-028BH 5.5'-6'

Lab ID# 2544-95LS

Date Sampled: 05/16/95

Date Received: 05/16/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *Hit was detected at 6.61 mg/kg above the assigned detection limit of 4 mg/kg.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

017-031BH 2'-2.5'

Lab ID# 2621-95LS

Date Sampled: 05/19/95

Date Received: 05/19/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *Hit was detected at 19.3 mg/kg above the assigned detection limit of 4 mg/kg.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

017-031BH 2'-2.5'(Dup) Lab ID# 2622-95LS

Date Sampled: 05/19/95

Date Received: 05/19/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *Hit was detected at 4.02 mg/kg above the assigned detection limit of 4 mg/kg.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

017-031BH 5.5'-6'

Lab ID# 2623-95LS

Date Sampled: 05/19/95

Date Received: 05/19/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *Hit was detected at 41.2 mg/kg above the assigned detection limits of 4 mg/kg.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

017-032BH 2'-2.5'

Lab ID# 2624-95LS

Date Sampled:

05/19/95

Date Received: 05/19/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

017-021BH 2'-2.5'

Lab ID# 2625-95LS

Date Sampled: 05/19/95

Date Received: 05/19/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

017-021BH 5.5'-6'

Lab ID# 2626-95LS

Date Sampled: 05/19/95

Date Received: 05/19/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

017-030BH 2'-2.5'

Lab ID# 2627-95LS

Date Sampled: 05/19/95

Date Received: 05/19/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *Hit was detected at 189 mg/kg above the assigned detection limit at 4 mg/kg.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

017-029BH 2'-2.5'

Lab ID# 2628-95LS

Date Sampled:

05/19/95

Date Received: 05/19/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *Hit was detected at 4.20 mg/kg above the assigned detection limit of 4 mg/kg.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

SOIL

017-029BH 2'-2.5' Dup

Lab ID# 2629-95LS

Date Sampled:

05/19/95

Date Received: 05/19/95

Diesel Range Organics/WDNR Method

SW846-8015 =

- *Hit was detected at 5.60 mg/kg above the assigned detection limit of 4 mg/kg.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

SAMPLE:

WATER

017-002RB

Lab ID# 2630-95LS

Date Sampled: 05/19/95

Date Received: 05/19/95

Diesel Range Organics/WDNR Method

SW846-8015 =

*No analysis was performed as per Chain of Custody requested analyses. The laboratory overlooked the analyses requested on the COC.

Gasoline Range Organics/WDNR Method

SW846-8015 =

- *No hits were detected above the assigned detection limits.
- *Met 14 day analysis holding time.
- *COC information verified.
- *All initial and continuing calibrations were within acceptable QC Limits.
- *All surrogate recoveries were within acceptable QC limits.
- *Blanks were clean of any contamination.

APPENDIX J

**ANALYTICAL RESULTS OF THE SOIL, GROUNDWATER,
AND SEDIMENT SAMPLES**

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SECTION J.1

INTRODUCTION

This appendix concerns the analytical results of soil, groundwater, and sediment samples collected during the recent RCRA Facility Investigation at the 148th Fighter Group, Minnesota ANG, Duluth, Minnesota. Table J.1 is a summary of the analytical results of soil samples collected from Site 17. Table J.2 is a summary of the analytical results of soil samples collected from Site 18. Table J.3 is a summary of the analytical results of soil samples collected from Site 21. Table J.4 is a summary of the analytical results of groundwater samples collected from Site 21. Table J.5 is a summary of the analytical results of sediment samples collected from Site 21.

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Table J.1
Analytical Results of Soil Samples Collected from Site 17
Minnesota Air National Guard Base
Duluth, Minnesota

| Analyte | Location No.: Sample Date: Lab Sample No.: | 017-010 BH2-0.5-1.0 10/4/94 9410769-01 | 017-010 BH-5.0-5.5 7/19/94 9407703-10 | 017-010 BH-5.0-5.5 DUP 7/19/94 9407703-11 | 017-010 BH-9.0-9.5 7/19/94 9407703-12 | 017-011 BH-1.5-2.0 7/19/94 9407703-08 | 017-011 BH-5.0-5.5 7/19/94 9407703-09 | 017-012 BH-2.0-2.5 7/19/94 9407703-06 |
|-----------------------------|--|--|---|---|---|---|---|---|
| Matrix | Soil | Soil | Soil | Soil | Soil | Soil | Soil | Soil |
| SVOCs (ug/kg) | 660U | 330U | 330U | 330U | 330U | 1,000 | 330U | 330U |
| Acenaphthene | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Acenaphthylene | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Aniline | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Anthracene | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Benzo (a) Anthracene | 660U | 330U | 330U | 330U | 330U | 2,800 | 330U | 330U |
| Benzo (b) Fluoranthene | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Benzo (k) Fluoranthene | 660U | 330U | 330U | 330U | 330U | 2,900 | 330U | 330U |
| Benzo (a) Pyrene | 660U | 330U | 330U | 330U | 330U | 3,100 | 330U | 330U |
| Benzoic Acid | 3,200U | 1,600U | 1,600U | 1,600U | 1,600U | 1,600U | 1,600U | 1,600U |
| Benzo(g,h,i)Perylene | 660U | 330U | 330U | 330U | 330U | 2,100 | 330U | 330U |
| Benzyl alcohol | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 4-Bromophenylphenyl ether | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Burylbenzylphthalate | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| di-n-Butyl phthalate | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Carbazole | 660U | 330U | 330U | 330U | 330U | 870 | 330U | 330U |
| 4-Chloroaniline | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| bis(2-Chloroethoxy)Methane | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| bis(2-Chloroethyl)Ether | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| bis(2-Chloroisopropyl)Ether | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 4-Chloro-3-Methylphenol | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 2-Chloronaphthalene | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 2-Chlorophenol | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 4-Chlorophenylphenyl ether | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Chrysene | 660U | 330U | 330U | 330U | 330U | 3,600 | 330U | 330U |
| Dibenz(a,h)Anthracene | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Dibenzofuran | 660U | 330U | 330U | 330U | 330U | 450 | 330U | 330U |
| 1,2-Dichlorobenzene | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 1,3-Dichlorobenzene | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 1,4-Dichlorobenzene | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 3,3'-Dichlorobenzidine | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 2,4-Dichlorophenol | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Diethylphthalate | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 2,4-Dimethylphenol | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Dimethyl Phthalate | 660U | 330U | 330U | 330U | 330U | 330U | 330U | 330U |

U - Indicates compound analyzed for but not detected
SVOCs - Semivolatile organic compounds
TPH - Total petroleum hydrocarbons

BH - Borehole
DUP - Duplicate

ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

Table J.1
Analytical Results of Soil Samples Collected from Site 17
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | 017-010 BH-2-0.5-1.0 10/4/94 9410269-01 | 017-010 BH-5-0.5-5.5 7/19/94 9407703-10 | 017-010 BH-5-0.5-5.5 DUP 7/19/94 9407703-11 | 017-010 BH-9-0.9-5 7/19/94 9407703-12 | 017-011 BH-1.5-2.0 7/19/94 9407703-08 | 017-011 BH-5.0-5.5 7/19/94 9407703-09 | 017-012 BH-2.0-2.5 7/19/94 9407703-06 |
|--|---|---|---|---|---|---|---|
| Analyte | Matrix | Soil | Soil | Soil | Soil | Soil | Soil |
| SVOCs (ug/kg) | | | | | | | |
| 4,6-Dinitro-2-Methylphenol | | 1,600U | 800U | 800U | 800U | 800U | 800U |
| 2,4-Dinitrophenol | | 1,600U | 800U | 800U | 800U | 800U | 800U |
| 2,4-Dinitrotoluene | | 660U | 330U | 330U | 330U | 330U | 330U |
| 2,6-Dinitrotoluene | | 660U | 330U | 330U | 330U | 330U | 330U |
| 1,2-Diphenylhydrazine | | 660U | 330U | 330U | 330U | 330U | 330U |
| bis (2-Ethylhexyl) Phthalate | | 660U | 330U | 330U | 330U | 330U | 330U |
| Fluoranthene | | 660U | 330U | 330U | 5,800 | 330U | 330U |
| Fluorene | | 660U | 330U | 330U | 330U | 330U | 330U |
| Hexachlorobenzene | | 660U | 330U | 330U | 330U | 330U | 330U |
| Hexachlorobutadiene | | 660U | 330U | 330U | 330U | 330U | 330U |
| Hexachloroethane | | 660U | 330U | 330U | 330U | 330U | 330U |
| Hexachlorocyclopentadiene | | 660U | 330U | 330U | 330U | 330U | 330U |
| Indeno (1,2,3-cd) Pyrene | | 660U | 330U | 330U | 1,800 | 330U | 330U |
| Isophorone | | 660U | 330U | 330U | 330U | 330U | 330U |
| 2-Methylnaphthalene | | 660U | 330U | 330U | 330U | 330U | 330U |
| 2-Methylphenol | | 660U | 330U | 330U | 330U | 330U | 330U |
| 4-Methylphenol | | 660U | 330U | 330U | 330U | 330U | 330U |
| Naphthalene | | 660U | 330U | 330U | 400 | 330U | 330U |
| 2-Nitroaniline | | 660U | 330U | 330U | 330U | 330U | 330U |
| 3-Nitroaniline | | 1,600U | 800U | 800U | 800U | 800U | 800U |
| 4-Nitroaniline | | 1,600U | 800U | 800U | 800U | 800U | 800U |
| Nitrobenzene | | 660U | 330U | 330U | 330U | 330U | 330U |
| 2-Nitrophenol | | 660U | 330U | 330U | 330U | 330U | 330U |
| 4-Nitrophenol | | 1,600U | 800U | 800U | 800U | 800U | 800U |
| (N-Nitrosodiphenylamine (1) | | 660U | 330U | 330U | 330U | 330U | 330U |
| N Nitroso Di n Propylamine | | 660U | 330U | 330U | 330U | 330U | 330U |
| (Di n Octyl Phthalate | | 660U | 330U | 330U | 330U | 330U | 330U |
| Pentachlorophenol | | 1,600U | 800U | 800U | 800U | 800U | 800U |
| Phenanthrene | | 660U | 330U | 330U | 330U | 330U | 330U |
| Phenol | | 660U | 330U | 330U | 4,900 | 330U | 330U |
| Pyrene | | 660U | 330U | 330U | 330U | 330U | 330U |
| Pyridine | | 660U | 330U | 330U | 4,900 | 330U | 330U |
| 1,2,4-Trichlorobenzene | | 660U | 330U | 330U | 330U | 330U | 330U |
| 2,4,5-Trichlorophenol | | 1,600U | 800U | 800U | 330U | 330U | 330U |
| 2,4,6-Trichlorophenol | | 660U | 330U | 330U | 800U | 800U | 800U |
| TPH (mg/kg) | | 180 | 36 | 22 | 10U | 180 | 25 |
| | | | | | | | 190 |

U - In this compound analyzed for but not detected
SVOCs - Semi-volatile organic compounds
TPH - Total petroleum hydrocarbons

BH - Borehole
DUP - Duplicate

ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

Table J.1
Analytical Results of Soil Samples Collected from Site 17
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | 017-012 BH-5.0-5.5 7/19/94 9407703-07 | 017-013 BH-1.5-2.0 7/18/94 9407680-01 | 017-013 BH-5.0-5.5 7/19/94 9407680-02 | 017-013 BH-9.0-9.5 7/18/94 9407680-03 | 017-014 BH-1.5-2.0 7/19/94 9407703-02 | 017-014 BH-5.0-5.5 7/19/94 9407703-03 | 017-014 BH-5.0-5.5 DUP 7/19/94 9407703-04 |
|--|---|---|---|---|---|---|---|
| Analyte | Matrix | Soil | Soil | Soil | Soil | Soil | Soil |
| SVOCs (ug/kg) | | | | | | | |
| Acenaphthene | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| Acenaphthylene | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| Aniline | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| Anthracene | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| Benzo (a) Anthracene | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| Benzo (b) Fluoranthene | 330U | 420 | 330U | 330U | 3,300U | 330U | 330U |
| Benzo (k) Fluoranthene | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| Benzo (a) Pyrene | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| Benzoic Acid | 1,600U | 1,600U | 1,600U | 1,600U | 16,000U | 1,600U | 1,600U |
| Benzo(g,h,i)Perylene | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| Benzyl alcohol | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| 4-Bromophenylphenyl ether | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| Butylbenzylphthalate | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| di-n-Butyl phthalate | 330U | 330U | 330U | 430 | 3,300U | 330U | 330U |
| Carbazole | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| 4-Chloroaniline | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| bis(2-Chloroethoxy)Methane | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| bis(2-Chloroethyl)Ether | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| bis(2-Chloroisopropyl)Ether | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| 4-Chloro-3-Methylphenol | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| 2-Chloronaphthalene | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| 2-Chlorophenol | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| 4-Chlorophenylphenyl ether | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| Chrysene | 330U | 370 | 330U | 330U | 3,300U | 330U | 330U |
| Dibenz(a,h)Anthracene | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| Dibenzofuran | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| 1,2-Dichlorobenzene | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| 1,3-Dichlorobenzene | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| 1,4-Dichlorobenzene | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| 3,3'-Dichlorobenzidine | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| 2,4-Dichlorophenol | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| Diethylphthalate | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| 2,4-Dimethylphenol | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |
| Dimethyl Phthalate | 330U | 330U | 330U | 330U | 3,300U | 330U | 330U |

U - Indicates compound analyzed for but not detected
SVOCs - Semivolatile organic compounds
TPH - Total petroleum hydrocarbons

BH - Borehole
DUP - Duplicate

ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

Table J.1
Analytical Results of Soil Samples Collected from Site 17
Minnesota Air National Guard Base
Duluth, Minnesota

| Analyte | Matrix | 017-012 BH-5.0-5.5 | | 017-013 BH-1.5-2.0 | | 017-013 BH-5.0-5.5 | | 017-013 BH-9.0-9.5 | | 017-014 BH-1.5-2.0 | | 017-014 BH-5.0-5.5 | | 017-014 BH-5.0-5.5 DUP | |
|------------------------------|--------|--------------------|------------|--------------------|------------|--------------------|------------|--------------------|------------|--------------------|------------|--------------------|------------|------------------------|------------|
| | | 7/19/94 | 9407703-07 | 7/18/94 | 9407680-01 | 7/18/94 | 9407680-02 | 7/18/94 | 9407680-03 | 7/19/94 | 9407703-02 | 7/19/94 | 9407703-03 | 7/19/94 | 9407703-04 |
| SVOCs (ug/kg) | | | | | | | | | | | | | | | |
| 4,6-Dinitro-2-Methylphenol | | 800U | | 800U | | 800U | | 800U | | 8,000U | | 800U | | 800U | |
| 2,4-Dinitrophenol | | 800U | | 800U | | 800U | | 800U | | 8,000U | | 800U | | 800U | |
| 2,4-Dinitrotoluene | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| 2,6-Dinitrotoluene | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| 1,2-Diphenylhydrazine | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| bis (2-Ethylhexyl) Phthalate | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| Fluoranthene | | 330U | | 590 | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| Fluorene | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| Hexachlorobenzene | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| Hexachlorobutadiene | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| Hexachloroethane | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| Hexachlorocyclopentadiene | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| Indeno (1,2,3-cd) Pyrene | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| Isophorone | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| 2-Methylnaphthalene | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| 2-Methylphenol | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| 4-Methylphenol | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| Naphthalene | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| 2-Nitroaniline | | 330U | | 800U | | 800U | | 800U | | 3,300U | | 330U | | 330U | |
| 3-Nitroaniline | | 800U | | 800U | | 800U | | 800U | | 8,000U | | 800U | | 800U | |
| 4-Nitroaniline | | 800U | | 800U | | 800U | | 800U | | 8,000U | | 800U | | 800U | |
| Nitrobenzene | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| 2-Nitrophenol | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| 4-Nitrophenol | | 800U | | 800U | | 800U | | 800U | | 8,000U | | 800U | | 800U | |
| N-Nitrosodiphenylamine (1) | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| N-Nitroso-Di-n-Propylamine | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| Di-n-Octyl Phthalate | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| Pentachlorophenol | | 800U | | 800U | | 800U | | 800U | | 8,000U | | 800U | | 800U | |
| Phenanthrene | | 330U | | 390 | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| Phenol | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| Pyrene | | 330U | | 640 | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| Pyridine | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| 1,2,4-Trichlorobenzene | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| 2,4,5-Trichlorophenol | | 800U | | 800U | | 800U | | 800U | | 8,000U | | 800U | | 800U | |
| 2,4,6-Trichlorophenol | | 330U | | 330U | | 330U | | 330U | | 3,300U | | 330U | | 330U | |
| TPH (mg/kg) | | 13 | | 275 | | 370 | | 34 | | 3,600 | | 350 | | 49 | |

U - Indicates compound analyzed for but not detected
SVOCs - Semivolatile organic compounds
TPH - Total petroleum hydrocarbons

BH - Borehole
DUP - Duplicate

ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

Table J.1
Analytical Results of Soil Samples Collected from Site 17
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | | 017-014 BH-9.0-9.5 7/19/94 9407703-05 | 017-015 BH-2.0-2.5 7/18/94 9407680-04 | 017-015 BH-5.5-6.0 7/18/94 9407680-05 | 017-015 BH-9.5-10.0 7/18/94 9407680-06 | 017-016 BH-1.5-2.0 7/18/94 9407680-07 | 017-016 BH-5.0-5.5 7/18/94 9407680-08 | 017-016 BH-9.0-9.5 7/18/94 9407680-09 |
|--|--------|---|---|---|--|---|---|---|
| Analyte | Matrix | Soil | Soil | Soil | Soil | Soil | Soil | Soil |
| SVOCs (ug/kg) | | | | | | | | |
| Acenaphthene | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| Acenaphthylene | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| Aniline | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| Anthracene | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| Benzo (a) Anthracene | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| Benzo (b) Fluoranthene | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| Benzo (k) Fluoranthene | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| Benzo (a) Pyrene | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| Benzoic Acid | | 1,600U | 3,200U | 3,200U | 3,200U | 1,600U | 1,600U | 1,600U |
| Benzo(g,h,i)Perylene | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| Benzyl alcohol | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| 4-Bromophenylphenyl ether | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| Butylbenzylphthalate | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| di-n Butyl phthalate | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| Carbazole | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| 4-Chloroaniline | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| bis(2-Chloroethoxy)Methane | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| bis(2-Chloroethyl)Ether | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| bis(2-Chloroisopropyl)Ether | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| 4-Chloro-3-Methylphenol | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| 2-Chloronaphthalene | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| 2-Chlorophenol | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| 4-Chlorophenylphenyl ether | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| Chrysene | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| Dibenz(a,h)Anthracene | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| Dibenzofuran | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| 1,2-Dichlorobenzene | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| 1,3-Dichlorobenzene | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| 1,4-Dichlorobenzene | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| 3,3'-Dichlorobenzidine | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| 2,4-Dichlorophenol | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| Diethylphthalate | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| 2,4-Dimethylphenol | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |
| Dimethyl Phthalate | | 330U | 660U | 660U | 660U | 1,600U | 330U | 330U |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
TPH - Total petroleum hydrocarbons

BH - Borehole
DUP - Duplicate

ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

Table J.1
Analytical Results of Soil Samples Collected from Site 17
Minnesota Air National Guard Base
Duluth, Minnesota

| Analyte | Matrix | 017-014 BH-9.0-9.5 | | 017-015 BH-2.0-2.5 | | 017-015 BH-5.5-6.0 | | 017-015 BH-9.5-10.0 | | 017-016 BH-1.5-2.0 | | 017-016 BH-5.0-5.5 | | 017-016 BH-9.0-9.5 | |
|------------------------------|--------|--------------------|------|--------------------|------|--------------------|------|---------------------|------|--------------------|------|--------------------|------|--------------------|------|
| | | 7/19/94 | Soil | 7/18/94 | Soil | 7/18/94 | Soil | 7/18/94 | Soil | 7/18/94 | Soil | 7/18/94 | Soil | 7/18/94 | Soil |
| Lab Sample No.: | | 9407703-05 | | 9407680-04 | | 9407680-05 | | 9407680-06 | | 9407680-07 | | 9407680-08 | | 9407680-09 | |
| SVOCs (ug/kg) | | | | | | | | | | | | | | | |
| 4,6-Dinitro-2-Methylphenol | | 800U | | 1,600U | | 1,600U | | 1,600U | | 4,000U | | 800U | | 800U | |
| 2,4-Dinitrophenol | | 800U | | 1,600U | | 1,600U | | 1,600U | | 4,000U | | 800U | | 800U | |
| 2,4-Dinitrotoluene | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| 2,6-Dinitrotoluene | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| 1,2-Diphenylhydrazine | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| bis (2-Ethylhexyl) Phthalate | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| Fluoranthene | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| Fluorene | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| Hexachlorobenzene | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| Hexachlorobutadiene | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| Hexachloroethane | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| Hexachlorocyclopentadiene | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| Indeno (1,2,3-cd) Pyrene | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| Isophorone | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| 2-Methylnaphthalene | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| 2-Methylphenol | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| 4-Methylphenol | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| Naphthalene | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| 2-Nitroaniline | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| 3-Nitroaniline | | 800U | | 1,600U | | 1,600U | | 1,600U | | 4,000U | | 800U | | 800U | |
| 4-Nitroaniline | | 800U | | 1,600U | | 1,600U | | 1,600U | | 4,000U | | 800U | | 800U | |
| Nitrobenzene | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| 2-Nitrophenol | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| 4-Nitrophenol | | 800U | | 1,600U | | 1,600U | | 1,600U | | 4,000U | | 800U | | 800U | |
| N-Nitrosodiphenylamine (1) | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| N-Nitroso-Di-n-Propylamine | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| Di-n-Octyl Phthalate | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| Pentachlorophenol | | 800U | | 1,600U | | 1,600U | | 1,600U | | 4,000U | | 800U | | 800U | |
| Phenanthrene | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| Phenol | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| Pyrene | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| Pyridine | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| 1,2,4-Trichlorobenzene | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| 2,4,5-Trichlorophenol | | 800U | | 1,600U | | 1,600U | | 1,600U | | 4,000U | | 800U | | 800U | |
| 2,4,6-Trichlorophenol | | 330U | | 660U | | 660U | | 660U | | 1,600U | | 330U | | 330U | |
| TPH (mg/kg) | | 17 | | 300 | | 110 | | 22 | | 7,700 | | 270 | | 22 | |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
TPH - Total petroleum hydrocarbons

BH - Borehole
DUP - Duplicate

ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

Table J.1
Analytical Results of Soil Samples Collected from Site 17
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | 017-017 BH-2.0-2.5 7/19/94 9407703-13 | 017-017 BH-5.0-5.5 7/19/94 9407703-14 | 017-017 BH-9.0-9.5 7/19/94 9407703-15 | 017-018 BH-1.5-2.0 7/20/94 9407813-02 | 017-018 BH-5.0-5.5 7/20/94 9407813-03 | 017-018 BH-5.0-5.5 DUP 7/20/94 9407813-04 | 017-018 BH-9.0-9.5 7/20/94 9407813-05 |
|--|---|---|---|---|---|---|---|
| Analyte | Soil | Soil | Soil | Soil | Soil | Soil | Soil |
| SVOCs (ug/kg) | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Acenaphthene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Acenaphthylene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Aniline | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Anthracene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Benzo (a) Anthracene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Benzo (b) Fluoranthene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Benzo (k) Fluoranthene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Benzo (a) Pyrene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Benzoic Acid | 1,600U | 1,600U | 1,600U | 1,600U | 3,200U | 8,000U | 1,600U |
| Benzo(g,h,i)Perylene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Benzyl alcohol | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| 4-Bromophenylphenyl ether | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Butylbenzylphthalate | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| di-n-Butyl phthalate | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Carbazole | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| 4-Chloroaniline | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| bis(2-Chloroethoxy)Methane | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| bis(2-Chloroethyl)Ether | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| bis(2-Chloroisopropyl)Ether | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| 4-Chloro-3-Methylphenol | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| 2-Chloronaphthalene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| 2-Chlorophenol | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| 4-Chlorophenylphenyl ether | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Chrysene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Dibenz(a,h)Anthracene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Dibenzofuran | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| 1,2-Dichlorobenzene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| 1,3-Dichlorobenzene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| 1,4-Dichlorobenzene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| 3,3'-Dichlorobenzidine | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| 2,4-Dichlorophenol | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Diethylphthalate | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| 2,4-Dimethylphenol | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Dimethyl Phthalate | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |

U - Indicates compound analyzed for but not detected
SVOCs - Semi-volatile organic compounds
TPH - Total petroleum hydrocarbons

BH - Borehole
DUP - Duplicate

ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

Table J.1
Analytical Results of Soil Samples Collected from Site 17
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | 017-017 BH-2.0-2.5 7/19/94 9407703-13 | 017-017 BH-5.0-5.5 7/19/94 9407703-14 | 017-017 BH-9.0-9.5 7/19/94 9407703-15 | 017-018 BH-1.5-2.0 7/20/94 9407813-02 | 017-018 BH-5.0-5.5 7/20/94 9407813-03 | 017-018 BH-5.0-5.5 DUP 7/20/94 9407813-04 | 017-018 BH-9.0-9.5 7/20/94 9407813-05 |
|--|---|---|---|---|---|---|---|
| Analyte Matrix | Soil | Soil | Soil | Soil | Soil | Soil | Soil |
| SVOC's (ug/kg) | | | | | | | |
| 4,6-Dinitro-2-Methylphenol | 800U | 800U | 800U | 800U | 1,600U | 4,000U | 800U |
| 2,4-Dinitrophenol | 800U | 800U | 800U | 800U | 1,600U | 4,000U | 800U |
| 2,4-Dinitrotoluene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| 2,6-Dinitrotoluene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| 1,2-Diphenylhydrazine | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| bis (2-Ethylhexyl) Phthalate | 330U | 820 | 330U | 330U | 660U | 1,600U | 330U |
| Fluoranthene | 330U | 330U | 330U | 600 | 660U | 1,600U | 330U |
| Fluorene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Hexachlorobenzene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Hexachlorobutadiene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Hexachlorocyclopentadiene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Indeno (1,2,3-cd) Pyrene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Isophorone | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| 2-Methylnaphthalene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| 2-Methylphenol | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| 4-Methylphenol | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Naphthalene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| 2-Nitroaniline | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| 3-Nitroaniline | 800U | 800U | 800U | 800U | 1,600U | 4,000U | 800U |
| 4-Nitroaniline | 800U | 800U | 800U | 800U | 1,600U | 4,000U | 800U |
| Nitrobenzene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| 2-Nitrophenol | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| 4-Nitrophenol | 800U | 800U | 800U | 800U | 1,600U | 4,000U | 800U |
| N-Nitrosodiphenylamine (1) | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| N-Nitroso-Di-n-Propylamine | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Di-n-Octyl Phthalate | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Pentachlorophenol | 800U | 800U | 800U | 800U | 1,600U | 4,000U | 800U |
| Phenanthrene | 330U | 330U | 330U | 470 | 660U | 1,600U | 330U |
| Phenol | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| Pyrene | 330U | 330U | 330U | 460 | 660U | 1,600U | 330U |
| Pyridine | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| 1,2,4-Trichlorobenzene | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| 2,4,5-Trichlorophenol | 800U | 800U | 800U | 800U | 1,600U | 4,000U | 800U |
| 2,4,6-Trichlorophenol | 330U | 330U | 330U | 330U | 660U | 1,600U | 330U |
| TPH (mg/kg) | 140 | 210 | 110 | 260 | 250 | 27 | 12 |

U - Indicates compound analyzed for but not detected.

SVOC's - Semivolatile organic compounds

TPH - Total petroleum hydrocarbons

BH - Borehole

DUP - Duplicate

ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

Table J.1
Analytical Results of Soil Samples Collected from Site 17
Minnesota Air National Guard Base
Duluth, Minnesota

| Analyte | 017-019 BH-2.0-2.5 | | 017-019 BH-5.0-5.5 | | 017-019 BH-9.0-9.5 | | 017-020 BH-1.5-2.0 | | 017-020 BH-5.0-5.5 | | 017-020 BH-9.0-9.5 | |
|-----------------------------|--|--------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|
| | Location No.: Sample Date: Lab Sample No.: | Matrix | Soil | Soil | Soil | Soil | Soil | Soil | Soil | Soil | Soil | Soil |
| SVOCs (ug/kg) | 7/20/94 9407813-06 | | | | | | | | | | | |
| Acenaphthene | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Acenaphthylene | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Aniline | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Anthracene | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Benzo (a) Anthracene | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Benzo (b) Fluoranthene | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Benzo (k) Fluoranthene | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Benzo (a) Pyrene | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Benzoic Acid | 1,600U | | 1,600U | | 1,600U | | 1,600U | | 8,000U | | 1,600U | |
| Benzo(g,h,i)Perylene | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Benzyl alcohol | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| 4-Bromophenylphenyl ether | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Butylbenzylphthalate | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| di-n-Butyl phthalate | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Carbazole | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| 4-Chloroaniline | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| bis(2-Chloroethoxy)Methane | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| bis(2-Chloroethyl)Ether | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| bis(2-Chloroisopropyl)Ether | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| 4-Chloro-3-Methylphenol | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| 2-Chloronaphthalene | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| 2-Chlorophenol | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| 4-Chlorophenylphenyl ether | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Chrysene | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Dibenz(a,h)Anthracene | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Dibenzofuran | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| 1,2-Dichlorobenzene | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| 1,3-Dichlorobenzene | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| 1,4-Dichlorobenzene | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| 3,3'-Dichlorobenzidine | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| 2,4-Dichlorophenol | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Diethylphthalate | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| 2,4-Dimethylphenol | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Dimethyl Phthalate | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
TPH - Total petroleum hydrocarbons

BH - Borehole
DUP - Duplicate

ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

Table J.1
Analytical Results of Soil Samples Collected from Site 17
Minnesota Air National Guard Base
Duluth, Minnesota

| Analyte | Location No.: Sample Date: Lab Sample No.: | 017-019 BH-2.0-2.5 | | 017-019 BH-5.0-5.5 | | 017-019 BH-9.0-9.5 | | 017-020 BH-1.5-2.0 | | 017-020 BH-5.0-5.5 | | 017-020 BH-9.0-9.5 | |
|------------------------------|--|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|
| | | 7/20/94 | Soil | 7/20/94 | Soil | 7/20/94 | Soil | 7/20/94 | Soil | 7/20/94 | Soil | 7/20/94 | Soil |
| SVOCs (ug/kg) | | | | | | | | | | | | | |
| 4,6-Dinitro-2-Methylphenol | | 800U | | 800U | | 800U | | 800U | | 4,000U | | 800U | |
| 2,4-Dinitrophenol | | 800U | | 800U | | 800U | | 800U | | 4,000U | | 800U | |
| 2,4-Dinitrotoluene | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| 2,6-Dinitrotoluene | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| 1,2-Diphenylhydrazine | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| bis (2-Ethylhexyl) Phthalate | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Fluoranthene | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Fluorene | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Hexachlorobenzene | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Hexachlorobutadiene | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Hexachloroethane | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Hexachlorocyclopentadiene | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Indeno (1,2,3-cd) Pyrene | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Isophorone | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| 2-Methylnaphthalene | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| 2-Methylphenol | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| 4-Methylphenol | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Naphthalene | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| 2-Nitroaniline | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| 3-Nitroaniline | | 800U | | 800U | | 800U | | 800U | | 4,000U | | 800U | |
| 4-Nitroaniline | | 800U | | 800U | | 800U | | 800U | | 4,000U | | 800U | |
| Nitrobenzene | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| 2-Nitrophenol | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| 4-Nitrophenol | | 800U | | 800U | | 800U | | 800U | | 4,000U | | 800U | |
| N-Nitrosodiphenylamine (1) | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| N-Nitroso-Di-n-Propylamine | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Di-n-Octyl Phthalate | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Pentachlorophenol | | 800U | | 800U | | 800U | | 800U | | 4,000U | | 800U | |
| Phenanthrene | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Phenol | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Pyrene | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| Pyridine | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| 1,2,4-Trichlorobenzene | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| 2,4,5-Trichlorophenol | | 800U | | 800U | | 800U | | 800U | | 4,000U | | 800U | |
| 2,4,6-Trichlorophenol | | 330U | | 330U | | 330U | | 330U | | 1,600U | | 330U | |
| TPH (mg/kg) | | 99 | | 10U | | 14 | | 24 | | 110 | | 29 | |

U - Indicates compound analyzed for but not detected
SVOCs - Semivolatile organic compounds
TPH - Total petroleum hydrocarbons

BH - Borehole
DUP - Duplicate

ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

Table J.2
Analytical Results of Soil Samples Collected from Site 18
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | 018-006BH2-0.8-1.3 10/5/94 9410180-04 | 018-006BH2-1.3-1.7 10/5/94 9410180-05 | 018-006BH2-2.1-2.5 10/5/94 9410180-06 | 018-007BH2-1.3-1.7 10/5/94 9410180-01 | 018-007BH2-1.3-1.7 10/5/94 9410180-02 | 018-007BH2-2.1-2.5 10/5/94 9410180-03 |
|--|---|---|---|---|---|---|
| VOCs (ug/kg) Matrix | Soil | Soil | Soil | Soil | Soil | Soil |
| Acetone | 10U | 10U | 10U | 10U | 50U | 50U |
| Benzene | 5U | 5U | 5U | 5U | 25U | 25U |
| Bromodichloromethane | 5U | 5U | 5U | 5U | 25U | 25U |
| Bromoform | 5U | 5U | 5U | 5U | 25U | 25U |
| Bromomethane | 10U | 10U | 10U | 10U | 50U | 50U |
| 2-Butanone | 20U | 20U | 20U | 20U | 100U | 100U |
| Carbon Disulfide | 5U | 5U | 5U | 5U | 25U | 25U |
| Carbon Tetrachloride | 5U | 5U | 5U | 5U | 25U | 25U |
| Chlorobenzene | 5U | 5U | 5U | 5U | 25U | 25U |
| Chloroethane | 10U | 10U | 10U | 10U | 50U | 50U |
| 2-Chloroethylvinylether | 10U | 10U | 10U | 10U | 50U | 50U |
| Chloroform | 5U | 5U | 5U | 5U | 25U | 25U |
| Chloromethane | 10U | 10U | 10U | 10U | 50U | 50U |
| Dibromochloromethane | 5U | 5U | 5U | 5U | 25U | 25U |
| 1,1-Dichloroethane | 5U | 5U | 5U | 5U | 25U | 25U |
| 1,1-Dichloroethene | 5U | 5U | 5U | 5U | 25U | 25U |
| 1,2-Dichloroethane | 5U | 5U | 5U | 5U | 25U | 25U |
| total -1,2-Dichloroethene | 5U | 5U | 5U | 5U | 25U | 25U |
| 1,2-Dichloropropane | 5U | 5U | 5U | 5U | 25U | 25U |
| cis-1,3-Dichloropropene | 5U | 5U | 5U | 5U | 25U | 25U |
| trans-1,3-Dichloropropene | 5U | 5U | 5U | 5U | 25U | 25U |
| Ethylbenzene | 5U | 5U | 5U | 5U | 25U | 25U |
| 2-Hexanone | 10U | 10U | 10U | 10U | 50U | 50U |
| Methylene Chloride | 5U | 5U | 5U | 5U | 25U | 25U |
| 4-Methyl-2-Pentanone | 10U | 10U | 10U | 10U | 50U | 50U |
| Styrene | 5U | 5U | 5U | 5U | 25U | 25U |
| 1,1,2,2-Tetrachloroethane | 5U | 5U | 5U | 5U | 25U | 25U |
| Tetrachloroethene | 5U | 5U | 5U | 5U | 25U | 25U |
| Toluene | 5U | 5U | 5U | 5U | 25U | 25U |
| 1,1,1-Trichloroethane | 5U | 5U | 5U | 5U | 25U | 25U |
| 1,1,2-Trichloroethane | 5U | 5U | 5U | 5U | 25U | 25U |
| Trichloroethene | 5U | 5U | 5U | 5U | 25U | 25U |
| Trichlorofluoromethane | 5U | 5U | 5U | 5U | 25U | 25U |
| Vinyl Acetate | 10U | 10U | 10U | 10U | 50U | 50U |
| Vinyl Chloride | 10U | 10U | 10U | 10U | 50U | 50U |
| Xylenes (total) | 5U | 5U | 5U | 5U | 25U | 74 |

U - Indicates compound analyzed for but not detected.
VOCs - Volatile organic compounds

ug/kg - micrograms per kilogram

BH - Borehole
DUP - Duplicate

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | 021-017 BH-6.0-6.5 DUP 7/15/94 9407612-03 | 021-017 BH-14.0-14.5 7/15/94 9407612-04 | 021-018 BH-1.5-2.0 7/14/94 9407566-05 | 021-018 BH-10.0-10.5 7/14/94 9407566-06 | 021-018 BH-14.0-14.5 7/14/94 9407566-07 | 021-018 BH-14.0-14.5 DUP 7/14/94 9407566-08 |
|--|---|---|---|---|---|---|
| VOCs (ug/kg) Matrix | Soil | Soil | Soil | Soil | Soil | Soil |
| Acetone | 10U | 10U | 10U | 10U | 10U | 10U |
| Benzene | 5U | 5U | 5U | 5U | 5U | 5U |
| Bromodichloromethane | 5U | 5U | 5U | 5U | 5U | 5U |
| Bromoform | 5U | 5U | 5U | 5U | 5U | 5U |
| Bromomethane | 10U | 10U | 10U | 10U | 10U | 10U |
| 2-Butanone | 20U | 20U | 20U | 20U | 20U | 20U |
| Carbon Disulfide | 5U | 5U | 5U | 5U | 5U | 5U |
| Carbon Tetrachloride | 5U | 5U | 5U | 5U | 5U | 5U |
| Chlorobenzene | 5U | 5U | 5U | 5U | 5U | 5U |
| Chloroethane | 10U | 10U | 10U | 10U | 10U | 10U |
| 2-Chloroethylvinylether | 10U | 10U | 10U | 10U | 10U | 10U |
| Chloroform | 5U | 5U | 5U | 5U | 5U | 5U |
| Chloromethane | 10U | 10U | 10U | 10U | 10U | 10U |
| Dibromochloromethane | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1-Dichloroethane | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1-Dichloroethene | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,2-Dichloroethane | 5U | 5U | 5U | 5U | 5U | 5U |
| total 1,2-Dichloroethene | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,2-Dichloropropane | 5U | 5U | 5U | 5U | 5U | 5U |
| cis-1,3-Dichloropropene | 5U | 5U | 5U | 5U | 5U | 5U |
| trans-1,3-Dichloropropene | 5U | 5U | 5U | 5U | 5U | 5U |
| Ethylbenzene | 5U | 5U | 5U | 5U | 5U | 5U |
| 2-Hexanone | 10U | 10U | 10U | 10U | 10U | 10U |
| Methylene Chloride | 5U | 5U | 5U | 5U | 5U | 5U |
| 4-Methyl-2-Pentanone | 10U | 10U | 10U | 10U | 10U | 10U |
| Styrene | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,2,2-Tetrachloroethane | 5U | 5U | 5U | 5U | 5U | 5U |
| Tetrachloroethene | 5U | 5U | 5U | 5U | 5U | 5U |
| Toluene | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,1-Trichloroethane | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,2-Trichloroethane | 5U | 5U | 5U | 5U | 5U | 5U |
| Trichloroethene | 5U | 5U | 5U | 5U | 5U | 5U |
| Trichlorofluoromethane | 5U | 5U | 5U | 5U | 5U | 5U |
| Vinyl Acetate | 10U | 10U | 10U | 10U | 10U | 10U |
| Vinyl Chloride | 10U | 10U | 10U | 10U | 10U | 10U |
| Xylenes (total) | 5U | 5U | 5U | 5U | 5U | 5U |

U - Indicates compound analyzed for but not detected.

VOCs - Volatile organic compounds

DUP - Duplicate

BH - Borehole
ug/kg - micrograms per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/kg) | Matrix | Location No.: 021-017 BH-6.0-6.5 DUP | | 021-017 BH-14.0-14.5 | | 021-018 BH-1.5-2.0 | | 021-018 BH-10.0-10.5 | | 021-018 BH-14.0-14.5 | | 021-018 BH-14.0-14.5 DUP | |
|-----------------------------|--------|--------------------------------------|------------|----------------------|------------|--------------------|------------|----------------------|------------|----------------------|------------|--------------------------|------------|
| | | Sample Date: 7/15/94 | 9407612-03 | 7/15/94 | 9407612-04 | 7/14/94 | 9407566-05 | 7/14/94 | 9407566-06 | 7/14/94 | 9407566-07 | 7/14/94 | 9407566-08 |
| Acenaphthene | Soil | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Acenaphthylene | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Aniline | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Anthracene | Soil | 330U | | 330U | | 1,900 | | 330U | | 330U | | 330U | |
| Benzo (a) Anthracene | Soil | 330U | | 330U | | 6,400 | | 330U | | 330U | | 330U | |
| Benzo (b) Fluoranthene | Soil | 330U | | 330U | | 9,300 | | 330U | | 330U | | 330U | |
| Benzo (k) Fluoranthene | Soil | 330U | | 330U | | 4,800 | | 330U | | 330U | | 330U | |
| Benzo (a) Pyrene | Soil | 330U | | 330U | | 5,500 | | 330U | | 330U | | 330U | |
| Benzoic Acid | Soil | 1,600U | | 1,600U | | 3,200U | | 1,600U | | 1,600U | | 1,600U | |
| Benzofg,h,i)Perylene | Soil | 330U | | 330U | | 3,500 | | 330U | | 330U | | 330U | |
| Benzyl alcohol | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| 4-Bromophenylphenyl ether | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Butylbenzylphthalate | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| di-n-Butyl phthalate | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Carbazole | Soil | 330U | | 330U | | 1,500 | | 330U | | 330U | | 330U | |
| 4-Chloroaniline | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| bis(2-Chloroethoxy)Methane | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| bis(2-Chloroethyl)Ether | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| bis(2-Chloroisopropyl)Ether | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| 4-Chloro-3-Methylphenol | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| 2-Chloronaphthalene | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| 2-Chlorophenol | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| 4-Chlorophenylphenyl ether | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Chrysene | Soil | 330U | | 330U | | 7,000 | | 330U | | 330U | | 330U | |
| Dibenz(a,h)Anthracene | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Dibenzofuran | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| 1,2-Dichlorobenzene | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| 1,3-Dichlorobenzene | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| 1,4-Dichlorobenzene | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| 3,3'-Dichlorobenzidine | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| 2,4-Dichlorophenol | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Diethylphthalate | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| 2,4-Dimethylphenol | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Dimethyl Phthalate | Soil | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
DUP - Duplicate

BH - Borehole
ug/kg - micrograms per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/kg) | Location No.: Sample Date: Lab Sample No.: | 021-017 BH-6.0-6.5 DUP 7/15/94 9407612-03 | 021-017 BH-14.0-14.5 7/15/94 9407612-04 | 021-018 BH-1.5-2.0 7/14/94 9407566-05 | 021-018 BH-10.0-10.5 7/14/94 9407566-06 | 021-018 BH-14.0-14.5 7/14/94 9407566-07 | 021-018 BH-14.0-14.5 DUP 7/14/94 9407566-08 |
|------------------------------|--|---|---|---|---|---|---|
| Matrix | | Soil | Soil | Soil | Soil | Soil | Soil |
| 4,6-Dinitro-2-Methylphenol | | 800U | 800U | 1,600U | 800U | 800U | 800U |
| 2,4-Dinitrophenol | | 800U | 800U | 1,600U | 800U | 800U | 800U |
| 2,4-Dinitrotoluene | | 330U | 330U | 660U | 330U | 330U | 330U |
| 2,6-Dinitrotoluene | | 330U | 330U | 660U | 330U | 330U | 330U |
| 1,2-Diphenylhydrazine | | 330U | 330U | 660U | 330U | 330U | 330U |
| bis (2-Ethylhexyl) Phthalate | | 330U | 330U | 660U | 330U | 330U | 330U |
| Fluoranthene | | 330U | 330U | 14,000 | 330U | 330U | 330U |
| Fluorene | | 330U | 330U | 920 | 330U | 330U | 330U |
| Hexachlorobenzene | | 330U | 330U | 660U | 330U | 330U | 330U |
| Hexachlorobutadiene | | 330U | 330U | 660U | 330U | 330U | 330U |
| Hexachlorocyclopentadiene | | 330U | 330U | 660U | 330U | 330U | 330U |
| Indeno (1,2,3-cd) Pyrene | | 330U | 330U | 3,900 | 330U | 330U | 330U |
| Isophorone | | 330U | 330U | 660U | 330U | 330U | 330U |
| 2-Methylnaphthalene | | 330U | 330U | 660U | 330U | 330U | 330U |
| 2-Methylphenol | | 330U | 330U | 660U | 330U | 330U | 330U |
| 4-Methylphenol | | 330U | 330U | 660U | 330U | 330U | 330U |
| Naphthalene | | 330U | 330U | 660U | 330U | 330U | 330U |
| 2-Nitroaniline | | 800U | 800U | 1,600U | 800U | 800U | 800U |
| 3-Nitroaniline | | 800U | 800U | 1,600U | 800U | 800U | 800U |
| 4-Nitroaniline | | 800U | 800U | 1,600U | 800U | 800U | 800U |
| Nitrobenzene | | 330U | 330U | 660U | 330U | 330U | 330U |
| 2-Nitrophenol | | 330U | 330U | 660U | 330U | 330U | 330U |
| 4-Nitrophenol | | 800U | 800U | 1,600U | 800U | 800U | 800U |
| N-Nitrosodiphenylamine (1) | | 330U | 330U | 660U | 330U | 330U | 330U |
| N Nitroso Di-n-Propylamine | | 330U | 330U | 660U | 330U | 330U | 330U |
| Di-n-Octyl Phthalate | | 330U | 330U | 660U | 330U | 330U | 330U |
| Pentachlorophenol | | 800U | 800U | 1,600U | 800U | 800U | 800U |
| Phenanthrene | | 330U | 330U | 660U | 330U | 330U | 330U |
| Phenol | | 330U | 330U | 8,800 | 330U | 330U | 330U |
| Pyrene | | 330U | 330U | 660U | 330U | 330U | 330U |
| Pyridine | | 330U | 330U | 12,000 | 330U | 330U | 330U |
| 1,2,4-Trichlorobenzene | | 330U | 330U | 660U | 330U | 330U | 330U |
| 2,4,5-Trichlorophenol | | 800U | 800U | 660U | 800U | 800U | 800U |
| 2,4,6-Trichlorophenol | | 330U | 330U | 660U | 330U | 330U | 330U |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
DUP - Duplicate

BH - Borehole
ug/kg - micrograms per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | 021-017 BH-6.0-6.5 DUP 7/15/94 9407612-03 | 021-017 BH-14.0-14.5 7/15/94 9407612-04 | 021-018 BH-1.5-2.0 7/14/94 9407566-05 | 021-018 BH-10.0-10.5 7/14/94 9407566-06 | 021-018 BH-14.0-14.5 7/14/94 9407566-07 | 021-018 BH-14.0-14.5 DUP 7/14/94 9407566-08 |
|--|---|---|---|---|---|---|
| Matrix | Soil | Soil | Soil | Soil | Soil | Soil |
| TPH (mg/kg) | 10U | 22 | 125 | 15 | 28 | 13 |
| Pesticides/PCBs (ug/kg) | | | | | | |
| a-BHC | 0.67U | 0.67U | 0.67U | 0.67U | 0.67U | 0.67U |
| b-BHC | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| d-BHC | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| g-BHC | 1.0U | 1.0U | 1.0U | 1.0U | 1.0U | 1.0U |
| Heptachlor | 1.0U | 1.0U | 1.0U | 1.0U | 1.0U | 1.0U |
| Aldrin | 0.67U | 0.67U | 0.67U | 0.67U | 0.67U | 0.67U |
| Heptachlor Epoxide | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| Endosulfan I | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| Dieldrin | 0.33U | 0.33U | 0.33U | 0.33U | 0.33U | 0.33U |
| Endrin | 1.3U | 1.3U | 1.3U | 1.3U | 1.3U | 1.3U |
| Endosulfan II | 1.0U | 1.0U | 1.0U | 1.0U | 1.0U | 1.0U |
| 4,4'-DDT | 2.3U | 2.3U | 2.3U | 2.3U | 2.3U | 2.3U |
| Endrin Aldehyde | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U |
| Methoxychlor | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| a-Chlordane | 0.33U | 0.33U | 0.33U | 0.33U | 0.33U | 0.33U |
| g-Chlordane | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| 1,4'-DDE | 0.67U | 0.67U | 0.67U | 0.67U | 0.67U | 0.67U |
| 1,4'-DDD | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U |
| Endosulfan Sulfate | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U |
| Endrin Ketone | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U |
| Toxaphene | 33U | 33U | 33U | 33U | 33U | 33U |

U - Indicates compound analyzed for but not detected
BH - Borehole
DUP - Duplicate

TPH - Total petroleum hydrocarbons
PCBs - Polychlorinated biphenyls

ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | 021-017 BH-6.0-6.5 DUP 7/15/94 9407612-03 | 021-017 BH-14.0-14.5 7/15/94 9407612-04 | 021-018 BH-1.5-2.0 7/14/94 9407566-05 | 021-018 BH-10.0-10.5 7/14/94 9407566-06 | 021-018 BH-14.0-14.5 7/14/94 9407566-07 | 021-018 BH-14.0-14.5 DUP 7/14/94 9407566-08 |
|--|---|---|---|---|---|---|
| Matrix | Soil | Soil | Soil | Soil | Soil | Soil |
| Pesticides/PCBs (ug/kg) | | | | | | |
| Chlordane (technical) | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| PCB-1016 | 17U | 17U | 17U | 17U | 17U | 17U |
| PCB-1221 | 17U | 17U | 17U | 17U | 17U | 17U |
| PCB-1232 | 17U | 17U | 17U | 17U | 17U | 17U |
| PCB-1242 | 17U | 17U | 17U | 17U | 17U | 17U |
| PCB-1248 | 17U | 17U | 17U | 17U | 17U | 17U |
| PCB-1260 | 17U | 17U | 17U | 17U | 17U | 17U |
| Metals (mg/kg) | | | | | | |
| Silver | 3U | 3U | 3U | 3U | 3U | 3U |
| Aluminum | 10,300 | 6,760 | 8,680 | 11,000 | 9,180 | 8,510 |
| Arsenic | 1 | 1U | 1U | 1 | 1 | 1U |
| Beryllium | 2U | 2U | 2U | 2U | 2U | 2U |
| Cadmium | 0.8U | 0.8U | 0.8U | 0.8U | 0.8U | 0.8U |
| Chromium | 21 | 9 | 29 | 22 | 14 | 13 |
| Copper | 64.4 | 31.2 | 40.8 | 69.2 | 41.0 | 77.9 |
| Mercury | 0.1U | 0.1U | 0.1U | 0.1U | 0.1U | 0.1U |
| Nickel | 25 | 13 | 27 | 24 | 20 | 17 |
| Lead | 3.1 | 1.7 | 16 | 2.6 | 2.6 | 2.4 |
| Antimony | 1U | 1U | 1U | 1U | 1U | 1U |
| Selenium | 0.8U | 0.8U | 0.8U | 0.8U | 0.8U | 0.8U |
| Thallium | 0.4U | 0.4U | 0.4U | 0.4U | 0.4U | 0.4U |
| Zinc | 47 | 27 | 55 | 46 | 36 | 54 |

U - Indicates compound analyzed for but not detected.
BH - Borehole
DUP - Duplicate

TPH - Total petroleum hydrocarbons
PCBs - Polychlorinated biphenyls

ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| VOCs (ug/kg) | Matrix | 021-015 BH-1.5-2.0 | | 021-015 BH-6.0-6.5 | | 021-016 BH-1.5-2.0 | | 021-016 BH-6.0-6.5 | | 021-017 BH-1.5-2.0 | | 021-017 BH-6.0-6.5 | |
|----------------------------|--------|--|------|--|------|--|------|--|------|--|------|--|------|
| | | Lab Sample No.: 7/14/94 9407566-01 | Soil | Lab Sample No.: 7/14/94 9407566-02 | Soil | Lab Sample No.: 7/14/94 9407566-03 | Soil | Lab Sample No.: 7/14/94 9407566-04 | Soil | Lab Sample No.: 7/14/94 9407612-01 | Soil | Lab Sample No.: 7/15/94 9407612-02 | Soil |
| Acetone | | 10U | 10U | 10U | 10U | 10U | 10U | 13 | 10U | 10U | 10U | 10U | 10U |
| Benzene | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Bromodichloromethane | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Bromoform | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Bromomethane | | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| 2-Butanone | | 20U | 20U | 20U | 20U | 20U | 20U | 20U | 20U | 20U | 20U | 20U | 20U |
| Carbon Disulfide | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Carbon Tetrachloride | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Chlorobenzene | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Chloroethane | | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| 2-Chloroethylvinylether | | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| Chloroform | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Chloromethane | | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| Dibromochloromethane | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,1-Trichloroethane | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,1-Dichloroethane | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,2-Dichloroethane | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| total - 1,2-Dichloroethane | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,2-Dichloropropane | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| cis-1,3-Dichloropropene | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| trans-1,3-Dichloropropene | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Ethylbenzene | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 2-Hexanone | | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| Methylene Chloride | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 4-Methyl-2-Pentanone | | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| Styrene | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,2,2-Tetrachloroethane | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Tetrachloroethene | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Toluene | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,1-Trichloroethane | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,2-Trichloroethane | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Trichloroethene | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Trichlorofluoromethane | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Vinyl Acetate | | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| Vinyl Chloride | | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| Xylenes (total) | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |

U - Indicates compound analyzed for but not detected.
VOCs - Volatile organic compounds
DUP - Duplicate

BH - Borehole
ug/kg - micrograms per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/kg) | Location No.: | | 021-015 BH-1.5-2.0 | | 021-015 BH-6.0-6.5 | | 021-016 BH-1.5-2.0 | | 021-016 BH-6.0-6.5 | | 021-017 BH-1.5-2.0 | | 021-017 BH-6.0-6.5 | |
|-----------------------------|---------------|--------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|
| | Matrix | Sample Date: | 7/14/94 | Soil | 7/14/94 | Soil | 7/14/94 | Soil | 7/14/94 | Soil | 7/15/94 | Soil | 7/15/94 | Soil |
| Lab Sample No.: | | | 9407566-01 | | 9407566-02 | | 9407566-03 | | 9407566-04 | | 9407612-01 | | 9407612-02 | |
| Acenaphthene | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Acenaphthylene | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Aniline | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Anthracene | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Benzo (a) Anthracene | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Benzo (b) Fluoranthene | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Benzo (k) Fluoranthene | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Benzo (a) Pyrene | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Benzoic Acid | | | 1,600U | | 1,600U | | 3,200U | | 1,600U | | 1,600U | | 1,600U | |
| Benzo(g,h,i)Perylene | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Benzyl alcohol | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| 4-Bromophenylphenyl ether | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Butylbenzylphthalate | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Di-n-Butyl phthalate | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Carbazole | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| 4-Chloroaniline | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| bis(2-Chloroethoxy)Methane | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| bis(2-Chloroethyl)Ether | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| bis(2-Chloroisopropyl)Ether | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| 4-Chloro-3-Methylphenol | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| 2-Chloronaphthalene | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| 2-Chlorophenol | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| 4-Chlorophenylphenyl ether | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Chrysene | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Dibenz(a,h)Anthracene | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Dibenzofuran | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| 1,2-Dichlorobenzene | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| 1,3-Dichlorobenzene | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| 1,4-Dichlorobenzene | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| 3,3'-Dichlorobenzidine | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| 2,4-Dichlorophenol | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Diethylphthalate | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| 2,4-Dimethylphenol | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |
| Dimethyl Phthalate | | | 330U | | 330U | | 660U | | 330U | | 330U | | 330U | |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
DUP - Duplicate

BH - Borehole
ug/kg - micrograms per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/kg) | Location No.: Sample Date: Lab Sample No.: | 021-015 BH-1.5-2.0 7/14/94 9407566-01 | 021-015 BH-6.0-6.5 7/14/94 9407566-02 | 021-016 BH-1.5-2.0 7/14/94 9407566-03 | 021-016 BH-6.0-6.5 7/14/94 9407566-04 | 021-017 BH-1.5-2.0 7/15/94 9407612-01 | 021-017 BH-6.0-6.5 7/15/94 9407612-02 |
|------------------------------|--|---|---|---|---|---|---|
| Matrix | Soil | Soil | Soil | Soil | Soil | Soil | Soil |
| 4,6-Dinitro-2-Methylphenol | 800U | 800U | 800U | 1,600U | 800U | 800U | 800U |
| 2,4-Dinitrophenol | 800U | 800U | 800U | 1,600U | 800U | 800U | 800U |
| 2,4-Dinitrotoluene | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| 2,6-Dinitrotoluene | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| 1,2-Diphenylhydrazine | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| bis (2-Ethylhexyl) Phthalate | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| Fluoranthene | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| Fluorene | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| Hexachlorobenzene | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| Hexachlorobutadiene | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| Hexachloroethane | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| Hexachlorocyclopentadiene | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| Indeno (1,2,3-cd) Pyrene | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| Isophorone | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| 2-Methylnaphthalene | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| 2-Methylphenol | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| 4-Methylphenol | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| Naphthalene | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| 2-Nitroaniline | 800U | 800U | 800U | 1,600U | 800U | 800U | 800U |
| 3-Nitroaniline | 800U | 800U | 800U | 1,600U | 800U | 800U | 800U |
| 4-Nitroaniline | 800U | 800U | 800U | 1,600U | 800U | 800U | 800U |
| Nitrobenzene | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| 2-Nitrophenol | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| 4-Nitrophenol | 800U | 800U | 800U | 1,600U | 800U | 800U | 800U |
| N-Nitrosodiphenylamine (1) | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| N-Nitroso-Di-n Propylamine | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| Di-n Octyl Phthalate | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| Pentachlorophenol | 800U | 800U | 800U | 1,600U | 800U | 800U | 800U |
| Phenanthrene | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| Phenol | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| Pyrene | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| Pyridine | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| 1,2,4-Trichlorobenzene | 330U | 330U | 330U | 660U | 330U | 330U | 330U |
| 2,4,5-Trichlorophenol | 800U | 800U | 800U | 1,600U | 800U | 800U | 800U |
| 2,4,6-Trichlorophenol | 330U | 330U | 330U | 660U | 330U | 330U | 330U |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
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BH - Borehole
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Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | Matrix | | 021-015 BH-1.5-2.0 7/14/94 9407566-01 | | 021-015 BH-6.0-6.5 7/14/94 9407566-02 | | 021-016 BH-1.5-2.0 7/14/94 9407566-03 | | 021-016 BH-6.0-6.5 7/14/94 9407566-04 | | 021-017 BH-1.5-2.0 7/15/94 9407612-01 | | 021-017 BH-6.0-6.5 7/15/94 9407612-02 | |
|--|--------|--|---|--|---|--|---|--|---|--|---|--|---|--|
| | Soil | | Soil | | Soil | | Soil | | Soil | | Soil | | Soil | |
| TPH (mg/kg) | 16 | | 15 | | 67 | | 100 | | 86 | | 14 | | | |
| Pesticides/PCBs (ug/kg) | | | | | | | | | | | | | | |
| a-BHC | 0.67U | | 0.67U | | 0.67U | | 0.67U | | 0.67U | | 0.67U | | 0.67U | |
| b-BHC | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | |
| d-BHC | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | |
| g-BHC | 1.0U | | 1.0U | | 1.0U | | 1.0U | | 1.0U | | 1.0U | | 1.0U | |
| Heptachlor | 1.0U | | 1.0U | | 1.0U | | 1.0U | | 1.0U | | 1.0U | | 1.0U | |
| Aldrin | 0.67U | | 0.67U | | 0.67U | | 0.67U | | 0.67U | | 0.67U | | 0.67U | |
| Heptachlor Epoxide | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | |
| Endosulfan I | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | |
| Dieldrin | 0.33U | | 0.33U | | 0.33U | | 0.33U | | 0.33U | | 0.33U | | 0.33U | |
| Endrin | 1.3U | | 1.3U | | 1.3U | | 1.3U | | 1.3U | | 1.3U | | 1.3U | |
| Endosulfan II | 1.0U | | 1.0U | | 1.0U | | 1.0U | | 1.0U | | 1.0U | | 1.0U | |
| 4,4'-DDT | 2.3U | | 2.3U | | 2.3U | | 2.3U | | 2.3U | | 2.3U | | 2.3U | |
| Endrin Aldehyde | 3.3U | | 3.3U | | 3.3U | | 3.3U | | 3.3U | | 3.3U | | 3.3U | |
| Methoxychlor | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | |
| a-Chlordane | 0.33U | | 0.33U | | 0.33U | | 0.33U | | 0.33U | | 0.33U | | 0.33U | |
| g-Chlordane | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | |
| 4,4'-DDE | 0.67U | | 0.67U | | 0.67U | | 0.67U | | 0.67U | | 0.67U | | 0.67U | |
| 4,4'-DDD | 3.3U | | 3.3U | | 3.3U | | 3.3U | | 3.3U | | 3.3U | | 3.3U | |
| Endosulfan Sulfate | 3.3U | | 3.3U | | 3.3U | | 3.3U | | 3.3U | | 3.3U | | 3.3U | |
| Endrin Ketone | 3.3U | | 3.3U | | 3.3U | | 3.3U | | 3.3U | | 3.3U | | 3.3U | |
| Toxaphene | 33U | | 33U | | 33U | | 33U | | 33U | | 33U | | 33U | |

U - Indicates compound analyzed for but not detected
 BH - Borehole
 DUP - Duplicate

TPH - Total petroleum hydrocarbons
 PCBs - Polychlorinated biphenyls

ug/kg - micrograms per kilogram
 mg/kg - milligrams per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | 021-015 BH-1.5-2.0 7/14/94 9407566-01 | 021-015 BH-6.0-6.5 7/14/94 9407566-02 | 021-016 BH-1.5-2.0 7/14/94 9407566-03 | 021-016 BH-6.0-6.5 7/14/94 9407566-04 | 021-017 BH-1.5-2.0 7/15/94 9407612-01 | 021-017 BH-6.0-6.5 7/15/94 9407612-02 |
|--|---|---|---|---|---|---|
| Matrix | Soil | Soil | Soil | Soil | Soil | Soil |
| Pesticides/PCBs (ug/kg) | | | | | | |
| Chlordane (technical) | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| PCB-1016 | 17U | 17U | 17U | 17U | 17U | 17U |
| PCB-1221 | 17U | 17U | 17U | 17U | 17U | 17U |
| PCB-1232 | 17U | 17U | 17U | 17U | 17U | 17U |
| PCB-1242 | 17U | 17U | 17U | 17U | 17U | 17U |
| PCB-1248 | 17U | 17U | 17U | 17U | 17U | 17U |
| PCB-1260 | 17U | 17U | 17U | 17U | 17U | 17U |
| Metals (mg/kg) | | | | | | |
| Silver | 3U | 3U | 3U | 3U | 3U | 3U |
| Aluminum | 11,400 | 14,400 | 8,550 | 10,500 | 10,800 | 11,400 |
| Arsenic | 1 | 2 | 1U | 2 | 1U | 1 |
| Beryllium | 2U | 2U | 2U | 2U | 2U | 2U |
| Cadmium | 0.8U | 0.8U | 0.8U | 0.8U | 0.8U | 0.8U |
| Chromium | 20 | 29 | 18 | 26 | 19 | 20 |
| Copper | 55.2 | 42.4 | 50.2 | 31.3 | 34.2 | 64.1 |
| Mercury | 0.1U | 0.1U | 0.1U | 0.1U | 0.1U | 0.1U |
| Nickel | 27 | 19 | 25 | 14 | 19 | 25 |
| Lead | 3.7 | 4.3 | 6.9 | 3.1 | 3.9 | 2.7 |
| Antimony | 1U | 1U | 1U | 1U | 1U | 1U |
| Selenium | 0.8U | 0.8U | 0.8U | 0.8U | 0.8U | 0.8U |
| Thallium | 0.4U | 0.4U | 0.4U | 0.4U | 0.4U | 0.4U |
| Zinc | 52 | 37 | 30 | 25 | 35 | 41 |

U - Indicates compound analyzed for but not detected.

BH - Borehole

DUP - Duplicate

TPH - Total petroleum hydrocarbons

PCBs - Polychlorinated biphenyls

ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: VOCs (ug/kg) | 021-019 BH-1.0-1.5 7/14/94 9407566-09 | 021-019 BH-6.0-6.5 7/14/94 9407566-10 | 021-019 BH-10.0-10.5 7/14/94 9407566-11 | 021-019 BH-14.0-14.5 7/14/94 9407567-12 | 021-020 BH-1.5-2.0 7/13/94 9407473-09 | 021-020 BH-6.0-6.5 7/13/94 9407473-10 |
|--|---|---|---|---|---|---|
| Matrix | Soil | Soil | Soil | Soil | Soil | Soil |
| Acetone | 10U | 10U | 10U | 10U | 10U | 85 |
| Benzene | 5U | 5U | 17 | 8 | 5U | 140 |
| Bromodichloromethane | 5U | 5U | 5U | 5U | 5U | 5U |
| Bromoform | 5U | 5U | 5U | 5U | 5U | 5U |
| Bromomethane | 10U | 10U | 10U | 10U | 10U | 10U |
| 2-Butanone | 20U | 20U | 20U | 20U | 20U | 31 |
| Carbon Disulfide | 5U | 5U | 5U | 5U | 5U | 5U |
| Carbon Tetrachloride | 5U | 5U | 5U | 5U | 5U | 5U |
| Chlorobenzene | 5U | 5U | 5U | 5U | 5U | 5U |
| Chloroethane | 10U | 10U | 10U | 10U | 10U | 10U |
| 2-Chloroethylvinylether | 10U | 10U | 10U | 10U | 10U | 10U |
| Chloroform | 10U | 10U | 10U | 10U | 10U | 10U |
| Chloromethane | 5U | 5U | 5U | 5U | 5U | 5U |
| Dibromochloromethane | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1-Dichloroethane | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,1-Dichloroethene | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,2-Dichloroethane | 5U | 5U | 5U | 5U | 5U | 54 |
| total -1,2-Dichloroethene | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,2-Dichloropropane | 5U | 5U | 5U | 5U | 5U | 5U |
| cis-1,3-Dichloropropene | 5U | 5U | 5U | 5U | 5U | 5U |
| trans-1,3-Dichloropropene | 5U | 5U | 5U | 5U | 5U | 5U |
| Ethylbenzene | 5U | 5U | 5U | 5U | 5U | 5U |
| 2-Hexanone | 10U | 10U | 10U | 10U | 10U | 10U |
| Methylene Chloride | 5U | 5U | 5U | 5U | 5U | 5U |
| 4-Methyl-2-Pentanone | 10U | 10U | 10U | 10U | 10U | 10U |
| Styrene | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,1,2-Tetrachloroethane | 5U | 5U | 5U | 5U | 5U | 5U |
| Tetrachloroethene | 5U | 5U | 5U | 5U | 5U | 5U |
| Toluene | 5U | 5U | 5U | 5U | 5U | 14 |
| 1,1,1-Trichloroethane | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,2-Trichloroethane | 5U | 5U | 5U | 5U | 5U | 5U |
| Trichloroethene | 5U | 5U | 5U | 5U | 5U | 5U |
| Trichlorofluoromethane | 5U | 5U | 5U | 5U | 5U | 5U |
| Vinyl Acetate | 10U | 10U | 10U | 10U | 10U | 10U |
| Vinyl Chloride | 10U | 10U | 10U | 10U | 10U | 10U |
| Xylenes (total) | 5U | 5U | 5U | 5U | 5U | 5U |

U - Indicates compound analyzed for but not detected.

VOCs - Volatile organic compounds

DUP - Duplicate

BH - Borehole
ug/kg - micrograms per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/kg) | Location No.: 021-019 BH-1.0-1.5 | | 021-019 BH-6.0-6.5 | | 021-019 BH-10.0-10.5 | | 021-019 BH-14.0-14.5 | | 021-020 BH-1.5-2.0 | | 021-020 BH-6.0-6.5 | |
|-----------------------------|----------------------------------|----------------------|----------------------------|--------|----------------------|------------|----------------------|---------|--------------------|--------|--------------------|------------|
| | Matrix | Sample Date: 7/14/94 | Lab Sample No.: 9407566-09 | Soil | 7/14/94 | 9407566-11 | Soil | 7/14/94 | 9407567-12 | Soil | 7/13/94 | 9407473-10 |
| Acenaphthene | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| Acenaphthylene | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| Aniline | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| Anthracene | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| Benzo (a) Anthracene | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| Benzo (b) Fluoranthene | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| Benzo (k) Fluoranthene | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| Benzo (a) Pyrene | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| Benzoic Acid | | 1,600U | | 1,600U | | 1,600U | | 1,600U | | 1,600U | | 1,600U |
| Benzo(g,h,i)Perylene | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| Benzyl alcohol | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| 4-Bromophenylphenyl ether | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| Butylbenzylphthalate | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| di-n-Butyl phthalate | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| Carbazole | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| 4-Chloroaniline | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| bis(2-Chloroethoxy)Methane | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| bis(2-Chloroethyl)Ether | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| bis(2-Chloroisopropyl)Ether | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| 4-Chloro-3-Methylphenol | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| 2-Chloronaphthalene | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| 2-Chlorophenol | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| 4-Chlorophenylphenyl ether | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| Chrysene | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| Dibenz(a,h)Anthracene | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| Dibenzofuran | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| 1,2-Dichlorobenzene | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| 1,3-Dichlorobenzene | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| 1,4-Dichlorobenzene | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| 3,3'-Dichlorobenzidine | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| 2,4-Dichlorophenol | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| Diethylphthalate | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| 2,4-Dimethylphenol | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |
| Dimethyl Phthalate | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
DUP - Duplicate

BH - Borehole
ug/kg - micrograms per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/kg) | Location No.: Sample Date: Lab Sample No.: | 021-019 BH-1.0-1.5 7/14/94 9407566-09 | 021-019 BH-6.0-6.5 7/14/94 9407566-10 | 021-019 BH-10.0-10.5 7/14/94 9407566-11 | 021-019 BH-14.0-14.5 7/14/94 9407566-12 | 021-020 BH-1.5-2.0 7/13/94 9407473-09 | 021-020 BH-6.0-6.5 7/13/94 9407473-10 |
|------------------------------|--|---|---|---|---|---|---|
| Matrix | Soil | Soil | Soil | Soil | Soil | Soil | Soil |
| 4,6-Dinitro-2-Methylphenol | 800U | 800U | 800U | 800U | 800U | 800U | 800U |
| 2,4-Dinitrophenol | 800U | 800U | 800U | 800U | 800U | 800U | 800U |
| 2,4-Dinitrotoluene | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 2,6-Dinitrotoluene | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 1,2-Diphenylhydrazine | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| bis (2-Ethylhexyl) Phthalate | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Fluoranthene | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Hexachlorobenzene | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Hexachlorobutadiene | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Hexachloroethane | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Hexachlorocyclopentadiene | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Indeno (1,2,3-cd) Pyrene | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Isophorone | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 2-Methylnaphthalene | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 2-Methylphenol | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 4-Methylphenol | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Naphthalene | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 2-Nitroaniline | 800U | 800U | 800U | 800U | 800U | 800U | 800U |
| 3-Nitroaniline | 800U | 800U | 800U | 800U | 800U | 800U | 800U |
| 4-Nitroaniline | 800U | 800U | 800U | 800U | 800U | 800U | 800U |
| Nitrobenzene | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 2-Nitrophenol | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 3-Nitrophenol | 800U | 800U | 800U | 800U | 800U | 800U | 800U |
| N-Nitrosodiphenylamine (1) | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| N-Nitroso-Di-n-Propylamine | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Di-n-Octyl Phthalate | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Pentachlorophenol | 800U | 800U | 800U | 800U | 800U | 800U | 800U |
| Phenanthrene | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Phenol | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Pyrene | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Pyridine | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 1,2,4-Trichlorobenzene | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 2,4,5-Trichlorophenol | 800U | 800U | 800U | 800U | 800U | 800U | 800U |
| 2,4,6-Trichlorophenol | 330U | 330U | 330U | 330U | 330U | 330U | 330U |

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Table J.3
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Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | 021-019 BH-1.0-1.5 7/14/94 9407566-09 | 021-019 BH-6.0-6.5 7/14/94 9407566-10 | 021-019 BH-10.0-10.5 7/14/94 9407566-11 | 021-019 BH-14.0-14.5 7/14/94 9407567-12 | 021-020 BH-1.5-2.0 7/13/94 9407473-09 | 021-020 BH-6.0-6.5 7/13/94 9407473-10 |
|--|---|---|---|---|---|---|
| Matrix | Soil | Soil | Soil | Soil | Soil | Soil |
| TPH (mg/kg) | 25 | 30 | 20 | 22 | 13 | 50 |
| Pesticides/PCBs (ug/kg) | | | | | | |
| a-BHC | 0.67U | 0.67U | 0.67U | 0.67U | 0.67U | 0.67U |
| b-BHC | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| d-BHC | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| g-BHC | 1.0U | 1.0U | 1.0U | 1.0U | 1.0U | 1.0U |
| Heptachlor | 1.0U | 1.0U | 1.0U | 1.0U | 1.0U | 1.0U |
| Aldrin | 0.67U | 0.67U | 0.67U | 0.67U | 0.67U | 0.67U |
| Heptachlor Epoxide | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| Endosulfan I | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| Dieldrin | 0.33U | 0.33U | 0.33U | 0.33U | 0.33U | 0.33U |
| Endosulfan II | 1.3U | 1.3U | 1.3U | 1.3U | 1.3U | 1.3U |
| 4,4'-DDT | 1.0U | 1.0U | 1.0U | 1.0U | 1.0U | 1.0U |
| Endrin Aldehyde | 2.3U | 2.3U | 2.3U | 2.3U | 2.3U | 2.3U |
| Methoxychlor | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U |
| a-Chlordane | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| g-Chlordane | 0.33U | 0.33U | 0.33U | 0.33U | 0.33U | 0.33U |
| 4,4'-DDE | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| 4,4'-DDD | 0.67U | 0.67U | 0.67U | 0.67U | 0.67U | 0.67U |
| Endosulfan Sulfate | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U |
| Endrin Ketone | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U |
| Toxaphene | 33U | 33U | 33U | 33U | 33U | 33U |

U - Indicates compound analyzed for but not detected
BH - Borehole
DUP - Duplicate

TPH - Total petroleum hydrocarbons
PCBs - Polychlorinated biphenyls

ug/kg - micrograms per kilogram
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Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | 021-019 BH-1.0-1.5 7/14/94 9407566-09 | 021-019 BH-6.0-6.5 7/14/94 9407566-10 | 021-019 BH-10.0-10.5 7/14/94 9407566-11 | 021-019 BH-14.0-14.5 7/14/94 9407567-12 | 021-020 BH-1.5-2.0 7/13/94 9407473-09 | 021-020 BH-6.0-6.5 7/13/94 9407473-10 |
|--|---|---|---|---|---|---|
| Matrix | Soil | Soil | Soil | Soil | Soil | Soil |
| Pesticides/PCBs (ug/kg) | | | | | | |
| Chlordane (technical) | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| PCB-1016 | 17U | 17U | 17U | 17U | 17U | 17U |
| PCB-1221 | 17U | 17U | 17U | 17U | 17U | 17U |
| PCB-1232 | 17U | 17U | 17U | 17U | 17U | 17U |
| PCB-1242 | 17U | 17U | 17U | 17U | 17U | 17U |
| PCB-1248 | 17U | 17U | 17U | 17U | 17U | 17U |
| PCB-1260 | 17U | 17U | 17U | 17U | 17U | 17U |
| Metals (mg/kg) | | | | | | |
| Silver | 3U | 3U | 3U | 3U | 3U | 3U |
| Aluminum | 10,100 | 12,600 | 6,430 | 7,390 | 10,000 | 2,450 |
| Arsenic | 1 | 1 | 1U | 1U | 1U | 1U |
| Beryllium | 2U | 2U | 2U | 2U | 2U | 2U |
| Cadmium | 0.8U | 0.8U | 0.8U | 0.8U | 0.08 | 0.28 |
| Chromium | 22 | 24 | 15 | 11 | 10 | 2.8 |
| Copper | 53.9 | 56.5 | 43.1 | 54.3 | 34.5 | 15.6 |
| Mercury | 0.1U | 0.1U | 0.1U | 0.1U | 0.1U | 0.1U |
| Nickel | 21 | 25 | 18 | 18 | 17 | 6 |
| Lead | 3.1 | 4.0 | 2.3 | 2.7 | 2.3 | 3.6 |
| Antimony | 1U | 1U | 1U | 1U | 1U | 1U |
| Selenium | 0.8U | 0.8U | 0.8U | 0.8U | 0.8U | 0.8U |
| Thallium | 0.4U | 0.4U | 0.4U | 0.4U | 0.4U | 0.4U |
| Zinc | 44 | 48 | 67 | 49 | 30 | 23 |

U - Indicates compound analyzed for but not detected

BH - Borehole

DUP - Duplicate

TPH - Total petroleum hydrocarbons

PCBs - Polychlorinated biphenyls

ug/kg - micrograms per kilogram

mg/kg - milligrams per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | 021-020 BH-14.0-14.5 7/13/94 9407473-11 | 021-021 BH-1.5-2.0 7/13/94 9407473-03 | 021-021 BH-11.0-11.5 7/13/94 9407473-04 | 021-021 BH-14.0-14.5 7/13/94 9407473-05 | 021-022 BH-1.5-2.0 7/12/94 9407405-01 | 021-022 BH-11.0-11.5 7/12/94 9407405-02 |
|--|---|---|---|---|---|---|
| VOCs (ug/kg) Matrix | Soil | Soil | Soil | Soil | Soil | Soil |
| Acetone | 13 | 10U | 10U | 10U | 10U | 10U |
| Benzene | 5U | 5U | 5U | 47 | 5U | 120 |
| Bromodichloromethane | 5U | 5U | 5U | 5U | 5U | 5U |
| Bromoform | 5U | 5U | 5U | 5U | 5U | 5U |
| Bromomethane | 10U | 10U | 10U | 10U | 10U | 10U |
| 2-Butanone | 20U | 20U | 20U | 20U | 20U | 20U |
| Carbon Disulfide | 5U | 5U | 5U | 5U | 5U | 5U |
| Carbon Tetrachloride | 5U | 5U | 5U | 5U | 5U | 5U |
| Chlorobenzene | 5U | 5U | 5U | 5U | 5U | 5U |
| Chloroethane | 10U | 10U | 10U | 10U | 10U | 10U |
| 2-Chloroethylvinylether | 10U | 10U | 10U | 10U | 10U | 10U |
| Chloroform | 5U | 5U | 5U | 5U | 5U | 5U |
| Chloromethane | 10U | 10U | 10U | 10U | 10U | 10U |
| Dibromochloromethane | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1-Dichloroethane | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1-Dichloroethene | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,2-Dichloroethane | 5U | 5U | 5U | 5U | 5U | 5 |
| total 1,2-Dichloroethene | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,2-Dichloropropane | 5U | 5U | 5U | 5U | 5U | 5U |
| cis-1,3-Dichloropropene | 5U | 5U | 5U | 5U | 5U | 5U |
| trans-1,3-Dichloropropene | 5U | 5U | 5U | 5U | 5U | 5U |
| Ethylbenzene | 5U | 5U | 5U | 8 | 5U | 130 |
| 2-Hexanone | 10U | 10U | 10U | 10U | 10U | 10U |
| Methylene Chloride | 5U | 5U | 5U | 5U | 5U | 5U |
| 4-Methyl-2-Pentanone | 10U | 10U | 10U | 10U | 10U | 10U |
| Styrene | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,2,2-Tetrachloroethane | 5U | 5U | 5U | 5U | 5U | 5U |
| Tetrachloroethene | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,1-Trichloroethane | 5U | 5U | 5U | 19 | 5U | 500 |
| 1,1,2-Trichloroethane | 5U | 5U | 5U | 5U | 5U | 5U |
| Trichloroethene | 5U | 5U | 5U | 5U | 5U | 5U |
| Trichlorofluoromethane | 5U | 5U | 5U | 5U | 5U | 5U |
| Vinyl Acetate | 10U | 10U | 10U | 10U | 10U | 10U |
| Vinyl Chloride | 10U | 10U | 10U | 10U | 10U | 10U |
| Xylenes (total) | 5U | 5U | 5U | 34 | 5U | 740 |

U - Indicates compound analyzed for but not detected.
VOCs - Volatile organic compounds
DTP - Duplicate

BH - Borehole
ug/kg - micrograms per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/kg) | Location No.: | | 021-020 BH-14.0-14.5 | | 021-021 BH-1.5-2.0 | | 021-021 BH-11.0-11.5 | | 021-021 BH-14.0-14.5 | | 021-022 BH-1.5-2.0 | | 021-022 BH-11.0-11.5 | |
|-----------------------------|---------------|--------|----------------------|------|--------------------|------|----------------------|------|----------------------|------|--------------------|------|----------------------|------|
| | Sample Date: | Matrix | 7/13/94 | Soil | 7/13/94 | Soil | 7/13/94 | Soil | 7/13/94 | Soil | 7/12/94 | Soil | 7/12/94 | Soil |
| Lab Sample No.: | | | 9407473-11 | | 9407473-03 | | 9407473-04 | | 9407473-05 | | 9407405-01 | | 9407405-02 | |
| Acenaphthene | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Acenaphthylene | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Aniline | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Anthracene | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Benzo (a) Anthracene | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Benzo (b) Fluoranthene | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Benzo (k) Fluoranthene | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Benzo (a) Pyrene | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Benzoic Acid | | | 1,600U | | 1,600U | | 1,600U | | 1,600U | | 1,600U | | 1,600U | |
| Benzo(g,h,i)Perylene | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Benzyol alcohol | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 4-Bromophenylphenyl ether | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Butylbenzylphthalate | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| di-n-Butyl phthalate | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Carbazole | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 4-Chloroaniline | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| bis(2-Chloroethoxy)Methane | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| bis(2-Chloroethyl)Ether | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| bis(2-Chloroisopropyl)Ether | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 4-Chloro-3-Methylphenol | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 2-Chloronaphthalene | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 2-Chlorophenol | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 4-Chlorophenylphenyl ether | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Chrysene | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Dibenz(a,h)Anthracene | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Dibenzofuran | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 1,2-Dichlorobenzene | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 1,3-Dichlorobenzene | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 1,4-Dichlorobenzene | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 3,3'-Dichlorobenzidine | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 2,4-Dichlorophenol | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Diethylphthalate | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 2,4-Dimethylphenol | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Dimethyl Phthalate | | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
DUP - Duplicate

BH - Borehole
ug/kg - micrograms per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/kg) | Location No.: | | Sample Date: | | Lab Sample No.: | | 021-020 BH-14.0-14.5 | | 021-021 BH-11.0-11.5 | | 021-021 BH-14.0-14.5 | | 021-022 BH-1.5-2.0 | | 021-022 BH-11.0-11.5 | |
|------------------------------|---------------|------|--------------|------------|-----------------|---------|----------------------|------|----------------------|------------|----------------------|---------|--------------------|------|----------------------|------------|
| | Matrix | Soil | 7/13/94 | 9407473-11 | Soil | 7/13/94 | 9407473-03 | Soil | 7/13/94 | 9407473-04 | Soil | 7/13/94 | 9407473-05 | Soil | 7/12/94 | 9407405-02 |
| 4,6-Dinitro 2-Methylphenol | | 800U | | | 800U | | | | 800U | | 800U | | 800U | | 800U | |
| 2,4-Dinitrophenol | | 800U | | | 800U | | | | 800U | | 800U | | 800U | | 800U | |
| 2,4-Dinitrotoluene | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| 2,6-Dinitrotoluene | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| 1,2-Diphenylhydrazine | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| bis (2-Ethylhexyl) Phthalate | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| Fluoranthene | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| Fluorene | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| Hexachlorobenzene | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| Hexachlorobutadiene | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| Hexachloroethane | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| Hexachlorocyclopentadiene | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| Indeno (1,2,3-cd) Pyrene | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| Isophorone | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| 2-Methylnaphthalene | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| 2-Methylphenol | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| 4-Methylphenol | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| Naphthalene | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| 2-Nitroaniline | | 800U | | | 800U | | | | 800U | | 800U | | 800U | | 800U | |
| 3-Nitroaniline | | 800U | | | 800U | | | | 800U | | 800U | | 800U | | 800U | |
| 4-Nitroaniline | | 800U | | | 800U | | | | 800U | | 800U | | 800U | | 800U | |
| Nitrobenzene | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| 2-Nitrophenol | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| 4-Nitrophenol | | 800U | | | 800U | | | | 800U | | 800U | | 800U | | 800U | |
| N-Nitrosodiphenylamine (1) | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| N Nitroso Di n-Propylamine | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| Di-n-Octyl Phthalate | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| Pentachlorophenol | | 800U | | | 800U | | | | 800U | | 800U | | 800U | | 800U | |
| Phenanthrene | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| Phenol | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| Pyrene | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| Pyridine | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| 1,2,4-Trichlorobenzene | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |
| 2,4,5-Trichlorophenol | | 800U | | | 800U | | | | 800U | | 800U | | 800U | | 800U | |
| 2,4,6-Trichlorophenol | | 330U | | | 330U | | | | 330U | | 330U | | 330U | | 330U | |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
DUP - Duplicate

BH - Borehole
ug/kg - micrograms per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | 021-020 BH-14.0-14.5 7/13/94 9407473-11 | 021-021 BH-1.5-2.0 7/13/94 9407473-03 | 021-021 BH-11.0-11.5 7/13/94 9407473-04 | 021-021 BH-14.0-14.5 7/13/94 9407473-05 | 021-022 BH-1.5-2.0 7/12/94 9407405-01 | 021-022 BH-11.0-11.5 7/12/94 9407405-02 |
|--|---|---|---|---|---|---|
| Matrix | Soil | Soil | Soil | Soil | Soil | Soil |
| TPH (mg/kg) | 21 | 140 | 21 | 10U | 250 | 13 |
| Pesticides/PCBs (ug/kg) | | | | | | |
| a-BHC | 0.67U | 0.67U | 0.67U | 0.67U | 0.67U | 0.67U |
| b-BHC | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| d-BHC | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| g-BHC | 1.0U | 1.0U | 1.0U | 1.0U | 1.0U | 1.0U |
| Heptachlor | 1.0U | 1.0U | 1.0U | 1.0U | 1.0U | 1.0U |
| Aldrin | 0.67U | 0.67U | 0.67U | 0.67U | 0.67U | 1.3 |
| Heptachlor Epoxide | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| Endosulfan I | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| Dieldrin | 0.33U | 0.33U | 0.33U | 0.33U | 0.33U | 0.33U |
| Endrin | 1.3U | 1.3U | 1.3U | 1.3U | 1.3U | 1.3U |
| Endosulfan II | 1.0U | 1.0U | 1.0U | 1.0U | 1.0U | 1.0U |
| 4,4'-DDT | 2.3U | 2.3U | 2.3U | 2.3U | 2.3U | 2.3U |
| Endrin Aldelyde | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U |
| Methoxychlor | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| a-Chlordane | 0.33U | 0.33U | 0.33U | 0.33U | 0.33U | 0.33U |
| g-Chlordane | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| 4,4'-DDE | 0.67U | 0.67U | 0.67U | 0.67U | 0.67U | 0.67U |
| 4,4'-DDD | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U |
| Endosulfan Sulfate | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U |
| Endrin Ketone | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U |
| Toxaphene | 33U | 33U | 33U | 33U | 33U | 33U |

U - Indicates compound analyzed for but not detected.
BH - Borehole
DUP - Duplicate

TPH - Total petroleum hydrocarbons
PCBs - Polychlorinated biphenyls

ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: | 021-020 BH-14.0-14.5 | 021-021 BH-11.0-11.5 | 021-021 BH-14.0-14.5 | 021-022 BH-1.5-2.0 | 021-022 BH-11.0-11.5 |
|--------------------------------|----------------------|----------------------|----------------------|--------------------|----------------------|
| Sample Date: | 7/13/94 | 7/13/94 | 7/13/94 | 7/12/94 | 7/12/94 |
| Lab Sample No.: | 9407473-11 | 9407473-03 | 9407473-04 | 9407405-01 | 9407405-02 |
| Matrix | Soil | Soil | Soil | Soil | Soil |
| Pesticides/PCBs (ug/kg) | | | | | |
| Chlordane (technical) | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| PCB-1016 | 17U | 17U | 17U | 17U | 17U |
| PCB-1221 | 17U | 17U | 17U | 17U | 17U |
| PCB-1232 | 17U | 17U | 17U | 17U | 17U |
| PCB-1242 | 17U | 17U | 17U | 17U | 17U |
| PCB-1248 | 17U | 17U | 17U | 17U | 17U |
| PCB-1260 | 17U | 17U | 17U | 17U | 17U |
| Metals (mg/kg) | | | | | |
| Silver | 3U | 3U | 3U | 0.6U | 0.6U |
| Aluminum | 8,250 | 9,300 | 11,000 | 10,100 | 12,700 |
| Arsenic | 1U | 1 | 1 | 1 | 2 |
| Beryllium | 2U | 2U | 2U | 0.9 | 0.8 |
| Cadmium | 0.07 | 0.09 | 0.06 | 0.8U | 0.8 |
| Chromium | 6 | 10 | 12 | 18 | 23 |
| Copper | 56.2 | 48.8 | 64.4 | 45 | 46 |
| Mercury | 0.1U | 0.1U | 0.1U | 0.1U | 0.1U |
| Nickel | 18 | 19 | 20 | 23 | 24 |
| Lead | 2.8 | 3.0 | 2.8 | 5.0 | 4.2 |
| Antimony | 1U | 1U | 1U | 1U | 1U |
| Selenium | 0.8U | 0.8U | 0.8U | 0.8U | 0.8U |
| Thallium | 0.4U | 0.4U | 0.4U | 0.4U | 0.4U |
| Zinc | 40 | 41 | 71 | 38 | 42 |

U - Indicates compound analyzed for but not detected
 BH - Borehole
 DUP - Duplicate

TPH - Total petroleum hydrocarbons
 PCBs - Polychlorinated biphenyls

ug/kg - micrograms per kilogram
 mg/kg - milligrams per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | 021-022 BH-14.0-14.5 7/12/94 9407405-03 | 021-023 BH-1.5-2.0 7/12/94 9407405-04 | 021-023 BH-11.0-11.5 7/12/94 9407405-05 | 021-023 BH-11.0-11.5 DUP 7/12/94 9407405-06 | 021-023 BH-14.0-14.5 7/12/94 9407405-07 | 021-024 BH-1.5-2.0 7/13/94 9407473-06 |
|--|---|---|---|---|---|---|
| VOCs (ug/kg) Matrix | Soil | Soil | Soil | Soil | Soil | Soil |
| Acetone | 10U | 10U | 38 | 10U | 10U | 10U |
| Benzene | 79 | 5U | 170 | 630 | 1100 | 5U |
| Bromodichloromethane | 5U | 5U | 5U | 5U | 5U | 5U |
| Bromoform | 5U | 5U | 5U | 5U | 5U | 5U |
| Bromomethane | 10U | 10U | 10U | 10U | 10U | 10U |
| 2-Butanone | 20U | 20U | 20U | 20U | 20U | 20U |
| Carbon Disulfide | 5U | 5U | 5U | 5U | 5U | 5U |
| Carbon Tetrachloride | 5U | 5U | 5U | 5U | 5U | 5U |
| Chlorobenzene | 5U | 5U | 5U | 5U | 5U | 5U |
| Chloroethane | 10U | 10U | 10U | 10U | 10U | 10U |
| 2-Chloroethylvinylether | 10U | 10U | 10U | 10U | 10U | 10U |
| Chloroform | 5U | 5U | 5U | 5U | 5U | 5U |
| Chloromethane | 10U | 10U | 10U | 10U | 10U | 10U |
| Dibromochloromethane | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1-Dichloroethane | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,1-Dichloroethene | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,2-Dichloroethane | 5U | 5U | 33 | 39 | 52 | 5U |
| total - 1,2-Dichloroethene | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,2-Dichloropropane | 5U | 5U | 5U | 5U | 5U | 5U |
| cis-1,3-Dichloropropene | 5U | 5U | 5U | 5U | 5U | 5U |
| trans-1,3-Dichloropropene | 5U | 5U | 5U | 5U | 5U | 5U |
| Ethylbenzene | 5U | 5U | 9 | 5U | 110 | 5U |
| 2-Hexanone | 10U | 10U | 10U | 10U | 10U | 10U |
| Methylene Chloride | 5U | 5U | 5U | 5U | 5U | 5U |
| 4-Methyl-2-Pentanone | 10U | 10U | 10U | 10U | 10U | 10U |
| Styrene | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,1,2,2-Tetrachloroethane | 5U | 5U | 5U | 5U | 5U | 5U |
| Tetracloroethene | 5U | 5U | 5U | 5U | 5U | 5U |
| Toluene | 6 | 5U | 33 | 5U | 350 | 5U |
| 1,1,1-Trichloroethane | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,2-Trichloroethane | 5U | 5U | 5U | 5U | 5U | 5U |
| Trichloroethene | 5U | 5U | 5U | 5U | 5U | 5U |
| Trichlorofluoromethane | 5U | 5U | 5U | 5U | 5U | 5U |
| Vinyl Acetate | 10U | 10U | 10U | 10U | 10U | 10U |
| Vinyl Chloride | 10U | 10U | 10U | 10U | 10U | 10U |
| Xylenes (total) | 18 | 5U | 33 | 5U | 370 | 5U |

U - Indicates compound analyzed for but not detected
VOCs - Volatile organic compounds
DUP - Duplicate

BH - Borehole
ug/kg - micrograms per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/kg) | Matrix | 021-022 BH-14.0-14.5 | | 021-023 BH-1.5-2.0 | | 021-023 BH-11.0-11.5 | | 021-023 BH-11.0-11.5 DUP | | 021-023 BH-14.0-14.5 | | 021-024 BH-1.5-2.0 | |
|-----------------------------|--------|----------------------|------|--------------------|------|----------------------|------|--------------------------|------|----------------------|------|--------------------|------|
| | | 7/12/94 | Soil | 7/12/94 | Soil | 7/12/94 | Soil | 7/12/94 | Soil | 7/12/94 | Soil | 7/13/94 | Soil |
| Lab Sample No.: | | 9407405-03 | | 9407405-04 | | 9407405-05 | | 9407405-06 | | 9407405-07 | | 9407473-06 | |
| Acenaphthene | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Acenaphthylene | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Aniline | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Anthracene | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Benzo (a) Anthracene | | 330U | | 690 | | 330U | | 330U | | 330U | | 330U | |
| Benzo (b) Fluoranthene | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Benzo (k) Fluoranthene | | 330U | | 1,200 | | 330U | | 330U | | 330U | | 330U | |
| Benzo (a) Pyrene | | 330U | | 760 | | 330U | | 330U | | 330U | | 330U | |
| Benzoic Acid | | 1,600U | | 1,600U | | 1,600U | | 1,600U | | 1,600U | | 1,600U | |
| Benzo(g,h,i)Perylene | | 330U | | 610 | | 330U | | 330U | | 330U | | 330U | |
| Benzyol alcohol | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 4-Bromophenylphenyl ether | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Butylbenzylphthalate | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| di-n-Butyl phthalate | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Carbazole | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 4-Chloroaniline | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| bis(2-Chloroethoxy)Methane | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| bis(2-Chloroethyl)Ether | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| bis(2-Chloroisopropyl)Ether | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 4-Chloro-3-Methylphenol | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 2-Chloronaphthalene | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 2-Chlorophenol | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 4-Chlorophenylphenyl ether | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Chrysene | | 330U | | 860 | | 330U | | 330U | | 330U | | 330U | |
| Dibenz(a,h)Anthracene | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Dibenzofuran | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 1,2-Dichlorobenzene | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 1,3-Dichlorobenzene | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 1,4-Dichlorobenzene | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 3,3'-Dichlorobenzidine | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 2,4-Dichlorophenol | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Diethylphthalate | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 2,4-Dimethylphenol | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Dimethyl Phthalate | | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
DUP - Duplicate

BH - Borehole
ug/kg - micrograms per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/kg) | Location No.: Sample Date: Lab Sample No.: | 021-022 BH-14.0-14.5 7/12/94 9407405-03 | 021-023 BH-1.5-2.0 7/12/94 9407405-04 | 021-023 BH-11.0-11.5 7/12/94 9407405-05 | 021-023 BH-11.0-11.5 DUP 7/12/94 9407405-06 | 021-023 BH-14.0-14.5 7/13/94 9407405-07 | 021-024 BH-1.5-2.0 7/13/94 9407473-06 |
|------------------------------|--|---|---|---|---|---|---|
| Matrix | | Soil | Soil | Soil | Soil | Soil | Soil |
| 4,6-Dinitro-2-Methylphenol | | 800U | 800U | 800U | 800U | 800U | 800U |
| 2,4-Dinitrophenol | | 800U | 800U | 800U | 800U | 800U | 800U |
| 2,4-Dinitrotoluene | | 330U | 330U | 330U | 330U | 330U | 330U |
| 2,6-Dinitrotoluene | | 330U | 330U | 330U | 330U | 330U | 330U |
| 1,2-Diphenylhydrazine | | 330U | 330U | 330U | 330U | 330U | 330U |
| bis (2-Ethylhexyl) Phthalate | | 330U | 330U | 330U | 330U | 330U | 330U |
| Fluoranthene | | 330U | 1,500 | 330U | 330U | 330U | 330U |
| Fluorene | | 330U | 330U | 330U | 330U | 330U | 330U |
| Hexachlorobenzene | | 330U | 330U | 330U | 330U | 330U | 330U |
| Hexachlorobutadiene | | 330U | 330U | 330U | 330U | 330U | 330U |
| Hexachlorocyclopentadiene | | 330U | 330U | 330U | 330U | 330U | 330U |
| Indeno (1,2,3-cd) Pyrene | | 330U | 330U | 330U | 330U | 330U | 330U |
| Isophorone | | 330U | 530 | 330U | 330U | 330U | 330U |
| 2-Methylnaphthalene | | 330U | 330U | 330U | 330U | 330U | 330U |
| 2-Methylphenol | | 330U | 330U | 330U | 330U | 330U | 330U |
| 4-Methylphenol | | 330U | 330U | 330U | 330U | 330U | 330U |
| Naphthalene | | 330U | 330U | 330U | 330U | 330U | 330U |
| 2-Nitroaniline | | 800U | 800U | 800U | 800U | 800U | 800U |
| 3-Nitroaniline | | 800U | 800U | 800U | 800U | 800U | 800U |
| 4-Nitroaniline | | 800U | 800U | 800U | 800U | 800U | 800U |
| Nitrobenzene | | 330U | 330U | 330U | 330U | 330U | 330U |
| 2-Nitrophenol | | 330U | 330U | 330U | 330U | 330U | 330U |
| 4-Nitrophenol | | 800U | 800U | 800U | 800U | 800U | 800U |
| N-Nitrosodiphenylamine (1) | | 330U | 330U | 330U | 330U | 330U | 330U |
| N-Nitroso-Di-n-Propylamine | | 330U | 330U | 330U | 330U | 330U | 330U |
| Di-n-Octyl Phthalate | | 330U | 330U | 330U | 330U | 330U | 330U |
| Pentachlorophenol | | 800U | 800U | 800U | 800U | 800U | 800U |
| Phenanthrene | | 330U | 990 | 330U | 330U | 330U | 330U |
| Phenol | | 330U | 330U | 330U | 330U | 330U | 330U |
| Pyrene | | 330U | 1,500 | 330U | 330U | 330U | 330U |
| Pyridine | | 330U | 330U | 330U | 330U | 330U | 330U |
| 1,2,4-Trichlorobenzene | | 330U | 330U | 330U | 330U | 330U | 330U |
| 2,4,5-Trichlorophenol | | 800U | 800U | 800U | 800U | 800U | 800U |
| 2,4,6-Trichlorophenol | | 330U | 330U | 330U | 330U | 330U | 330U |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
DUP - Duplicate

BH - Borehole
ug/kg - micrograms per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | 021-022 BH-14.0-14.5 7/12/94 9407405-03 | 021-023 BH-1.5-2.0 7/12/94 9407405-04 | 021-023 BH-11.0-11.5 7/12/94 9407405-05 | 021-023 BH-11.0-11.5 DUP 7/12/94 9407405-06 | 021-023 BH-14.0-14.5 7/12/94 9407405-07 | 021-024 BH-1.5-2.0 7/13/94 9407473-06 |
|--|---|---|---|---|---|---|
| Matrix | Soil | Soil | Soil | Soil | Soil | Soil |
| TPH (mg/kg) | 10U | 190 | 10U | 12 | 18 | 14 |
| Pesticides/PCBs (ug/kg) | | | | | | |
| a-BHC | 0.67U | 3.35U | 0.67U | 0.67U | 0.67U | 0.67U |
| b-BHC | 1.7U | 8.5U | 1.7U | 1.7U | 1.7U | 1.7U |
| d-BHC | 1.7U | 8.5U | 1.7U | 1.7U | 1.7U | 1.7U |
| g-BHC | 1.0U | 5.0U | 1.0U | 1.0U | 1.0U | 1.0U |
| Heptachlor | 1.0U | 5.0U | 1.0U | 1.0U | 1.0U | 1.0U |
| Aldrin | 0.67U | 3.35U | 0.67U | 0.67U | 0.67U | 0.67U |
| Heptachlor Epoxide | 1.7U | 8.5U | 1.7U | 1.7U | 1.7U | 1.7U |
| Endosulfan I | 1.7U | 8.5U | 1.7U | 1.7U | 1.7U | 1.7U |
| Dieldrin | 0.33U | 1.65U | 0.33U | 0.33U | 0.33U | 0.33U |
| Endrin | 1.3U | 6.5U | 1.3U | 1.3U | 1.3U | 1.3U |
| Endosulfan II | 1.0U | 5.0U | 1.0U | 1.0U | 1.0U | 1.0U |
| 4,4'-DDT | 2.3U | 11.5U | 2.3U | 2.3U | 2.3U | 2.3U |
| Endrin Aldehyde | 3.3U | 16.5U | 3.3U | 3.3U | 3.3U | 3.3U |
| Methoxychlor | 1.7U | 8.5U | 1.7U | 1.7U | 1.7U | 1.7U |
| a-Chlordane | 0.33U | 1.65U | 0.33U | 0.33U | 0.33U | 0.33U |
| g-Chlordane | 1.7U | 8.5U | 1.7U | 1.7U | 1.7U | 1.7U |
| 4,4'-DDE | 0.67U | 3.35U | 0.67U | 0.67U | 0.67U | 0.67U |
| 4,4'-DDD | 3.3U | 16.5U | 3.3U | 3.3U | 3.3U | 3.3U |
| Endosulfan Sulfate | 3.3U | 16.5U | 3.3U | 3.3U | 3.3U | 3.3U |
| Endrin Ketone | 3.3U | 16.5U | 3.3U | 3.3U | 3.3U | 3.3U |
| Toxaphene | 33U | 165U | 33U | 33U | 33U | 33U |

U - Indicates compound analyzed for but not detected
BH - Borehole
DUP - Duplicate

TPH - Total petroleum hydrocarbons
PCBs - Polychlorinated biphenyls

ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | 021-022 BH-14.0-14.5 | | 021-023 BH-1.5-2.0 | | 021-023 BH-11.0-11.5 | | 021-023 BH-11.0-11.5 DUP | | 021-023 BH-14.0-14.5 | | 021-024 BH-1.5-2.0 | |
|--|----------------------|------------|--------------------|------------|----------------------|------------|--------------------------|------------|----------------------|------------|--------------------|------------|
| | 7/12/94 | 9407405-03 | 7/12/94 | 9407405-04 | 7/12/94 | 9407405-05 | 7/12/94 | 9407405-06 | 7/12/94 | 9407405-07 | 7/13/94 | 9407473-06 |
| Matrix | Soil | Soil | Soil | Soil | Soil | Soil | Soil | Soil | Soil | Soil | Soil | Soil |
| Pesticides/PCBs (ug/kg) | | | | | | | | | | | | |
| Chlordane (technical) | | | 47 | | 1.7U | | | 1.7U | | 1.7U | | 1.7U |
| PCB-1016 | 1.7U | | 85U | | 17U | | | 17U | | 17U | | 17U |
| PCB-1221 | 17U | | 85U | | 17U | | | 17U | | 17U | | 17U |
| PCB-1232 | 17U | | 85U | | 17U | | | 17U | | 17U | | 17U |
| PCB-1242 | 17U | | 85U | | 17U | | | 17U | | 17U | | 17U |
| PCB-1248 | 17U | | 85U | | 17U | | | 17U | | 17U | | 17U |
| PCB-1260 | 17U | | 85U | | 17U | | | 17U | | 17U | | 17U |
| Metals (mg/kg) | | | | | | | | | | | | |
| Silver | 0.6U | | 0.6U | | 0.6U | | | 0.6U | | 0.6U | | 3U |
| Aluminum | 10,300 | | 11,100 | | 17,800 | | | 9,560 | | 8,870 | | 11,400 |
| Arsenic | 2 | | 5U | | 5U | | | 1U | | 1 | | 2 |
| Beryllium | 0.8 | | 0.9 | | 1.0 | | | 0.8 | | 0.7 | | 2U |
| Cadmium | 0.8U | | 0.8U | | 0.8U | | | 0.8U | | 0.8U | | 0.07 |
| Chromium | 19 | | 21 | | 29 | | | 18 | | 18 | | 17 |
| Copper | 42 | | 47 | | 44 | | | 46 | | 24 | | 36.4 |
| Mercury | 0.1U | | 0.1U | | 0.1U | | | 0.1U | | 0.1U | | 0.1U |
| Nickel | 25 | | 26 | | 30 | | | 22 | | 17 | | 17 |
| Lead | 2.8 | | 20 | | 3.9 | | | 2.3 | | 4.7 | | 5.3 |
| Antimony | 1U | | 1U | | 1U | | | 1U | | 1U | | 1U |
| Selenium | 0.8U | | 0.8U | | 0.8U | | | 0.8U | | 0.8U | | 0.8U |
| Thallium | 0.4U | | 0.4U | | 0.4U | | | 0.4U | | 0.4U | | 0.4U |
| Zinc | 34 | | 41 | | 43 | | | 40 | | 32 | | 42 |

U - Indicates compound analyzed for but not detected
BH - Borehole
DUP - Duplicate

TPH - Total petroleum hydrocarbons
PCBs - Polychlorinated biphenyls

ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | 021-024 BH-10.0-10.5 7/13/94 9407473-07 | 021-024 BH-16.0-16.5 7/13/94 9407473-08 | 021-025 BH-1.5-2.0 7/12/94 9407405-08 | 021-025 BH-10.0-10.5 7/12/94 9407405-09 | 021-025 BH-14.0-14.5 7/12/94 9407405-10 |
|--|---|---|---|---|---|
| VOCs (ug/kg) | Soil | Soil | Soil | Soil | Soil |
| Acetone | 10U | 10U | 10U | 10U | 10U |
| Benzene | 640 | 330 | 5U | 5U | 5U |
| Bromodichloromethane | 5U | 5U | 5U | 5U | 5U |
| Bromoform | 5U | 5U | 5U | 5U | 5U |
| Bromomethane | 10U | 10U | 10U | 10U | 10U |
| 2-Butanone | 20U | 20U | 20U | 20U | 20U |
| Carbon Disulfide | 5U | 5U | 5U | 5U | 5U |
| Carbon Tetrachloride | 5U | 5U | 5U | 5U | 5U |
| Chlorobenzene | 5U | 5U | 5U | 5U | 5U |
| Chloroethane | 10U | 10U | 10U | 10U | 10U |
| 2-Chloroethylvinylether | 10U | 10U | 10U | 10U | 10U |
| Chloroform | 5U | 5U | 5U | 5U | 5U |
| Chloromethane | 10U | 10U | 10U | 10U | 10U |
| Dibromochloromethane | 5U | 5U | 5U | 5U | 5U |
| 1,1-Dichloroethane | 5U | 5U | 5U | 5U | 5U |
| 1,1-Dichloroethene | 5U | 5U | 5U | 5U | 5U |
| 1,2-Dichloroethane | 5U | 7 | 5U | 5U | 5U |
| total 1,2-Dichloroethene | 5U | 5U | 5U | 5U | 5U |
| 1,2-Dichloropropane | 5U | 5U | 5U | 5U | 5U |
| cis-1,3-Dichloropropene | 5U | 5U | 5U | 5U | 5U |
| trans-1,3-Dichloropropene | 5U | 5U | 5U | 5U | 5U |
| Ethylbenzene | 21 | 61 | 5U | 5U | 5U |
| 2-Hexanone | 10U | 10U | 10U | 10U | 10U |
| Methylene Chloride | 5U | 5U | 5U | 5U | 5U |
| 4-Methyl-2-Pentanone | 10U | 10U | 10U | 10U | 10U |
| Styrene | 5U | 5U | 5U | 5U | 5U |
| 1,1,2,2-Tetrachloroethane | 5U | 5U | 5U | 5U | 5U |
| Tetrachloroethene | 5U | 5U | 5U | 5U | 5U |
| Toluene | 8 | 5U | 5U | 5U | 5U |
| 1,1,1-Trichloroethane | 5U | 5U | 5U | 5U | 5U |
| 1,1,2-Trichloroethane | 5U | 5U | 5U | 5U | 5U |
| Trichloroethene | 5U | 5U | 5U | 5U | 5U |
| Trichlorofluoromethane | 5U | 5U | 5U | 5U | 5U |
| Vinyl Acetate | 10U | 10U | 10U | 10U | 10U |
| Vinyl Chloride | 10U | 10U | 10U | 10U | 10U |
| Xylenes (total) | 5U | 5U | 5U | 5U | 5U |

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VOCs - Volatile organic compounds

DUP - Duplicate

BH - Borehole
ug/kg - micrograms per kilogram

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Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/kg) | Location No.: Sample Date: Lab Sample No.: | 021-024 BH-10.0-10.5 7/13/94 9407473-07 | 021-024 BH-16.0-16.5 7/13/94 9407473-08 | 021-025 BH-1.5-2.0 7/12/94 9407405-08 | 021-025 BH-10.0-10.5 7/12/94 9407405-09 | 021-025 BH-14.0-14.5 7/12/94 9407405-10 |
|-----------------------------|--|---|---|---|---|---|
| Acenaphthene | Matrix | Soil | Soil | Soil | Soil | Soil |
| Acenaphthylene | | 330U | 330U | 330U | 330U | 330U |
| Aniline | | 330U | 330U | 330U | 330U | 330U |
| Anthracene | | 330U | 330U | 330U | 330U | 330U |
| Benzo (a) Anthracene | | 330U | 330U | 330U | 330U | 330U |
| Benzo (b) Fluoranthene | | 330U | 330U | 330U | 330U | 330U |
| Benzo (k) Fluoranthene | | 330U | 330U | 330U | 330U | 330U |
| Benzo (a) Pyrene | | 330U | 330U | 330U | 330U | 330U |
| Benzoic Acid | | 1,600U | 1,600U | 1,600U | 1,600U | 1,600U |
| Benzo(g,h,i)Perylene | | 330U | 330U | 330U | 330U | 330U |
| Benzy alcohol | | 330U | 330U | 330U | 330U | 330U |
| 4-Bromophenylphenyl ether | | 330U | 330U | 330U | 330U | 330U |
| Butylbenzylphthalate | | 330U | 330U | 330U | 330U | 330U |
| di-n-Butyl phthalate | | 330U | 330U | 330U | 330U | 330U |
| Carbazole | | 330U | 330U | 330U | 330U | 330U |
| 4-Chloroaniline | | 330U | 330U | 330U | 330U | 330U |
| bis(2-Chloroethoxy)Methane | | 330U | 330U | 330U | 330U | 330U |
| bis(2-Chloroethyl)Ether | | 330U | 330U | 330U | 330U | 330U |
| bis(2-Chloroisopropyl)Ether | | 330U | 330U | 330U | 330U | 330U |
| 4-Chloro-3-Methylphenol | | 330U | 330U | 330U | 330U | 330U |
| 2-Chloronaphthalene | | 330U | 330U | 330U | 330U | 330U |
| 2-Chlorophenol | | 330U | 330U | 330U | 330U | 330U |
| 4-Chlorophenylphenyl ether | | 330U | 330U | 330U | 330U | 330U |
| Chrysene | | 330U | 330U | 330U | 330U | 330U |
| Dibenz(a,h)Anthracene | | 330U | 330U | 330U | 330U | 330U |
| Dibenzofuran | | 330U | 330U | 330U | 330U | 330U |
| 1,2-Dichlorobenzene | | 330U | 330U | 330U | 330U | 330U |
| 1,3-Dichlorobenzene | | 330U | 330U | 330U | 330U | 330U |
| 1,4-Dichlorobenzene | | 330U | 330U | 330U | 330U | 330U |
| 3,3'-Dichlorobenzidine | | 330U | 330U | 330U | 330U | 330U |
| 2,4-Dichlorophenol | | 330U | 330U | 330U | 330U | 330U |
| Diethylphthalate | | 330U | 330U | 330U | 330U | 330U |
| 2,4-Dimethylphenol | | 330U | 330U | 330U | 330U | 330U |
| Dimethyl Phthalate | | 330U | 330U | 330U | 330U | 330U |

U - Indicates compound analyzed for but not detected.

SVOCs - Semivolatile organic compounds

1DUP - Duplicate

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Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/kg) | Location No.: Sample Date: Lab Sample No.: | 021-024 BH-10.0-10.5 7/13/94 9407473-07 | 021-024 BH-16.0-16.5 7/13/94 9407473-08 | 021-025 BH-1.5-2.0 7/12/94 9407405-08 | 021-025 BH-10.0-10.5 7/12/94 9407405-09 | 021-025 BH-14.0-14.5 7/12/94 9407405-10 |
|------------------------------|--|---|---|---|---|---|
| 4,6-Dinitro-2-Methylphenol | | 800U | 800U | 800U | 800U | 800U |
| 2,4-Dinitrophenol | | 800U | 800U | 800U | 800U | 800U |
| 2,4-Dinitrotoluene | | 330U | 330U | 330U | 330U | 330U |
| 2,6-Dinitrotoluene | | 330U | 330U | 330U | 330U | 330U |
| 1,2-Diphenylhydrazine | | 330U | 330U | 330U | 330U | 330U |
| bis (2-Ethylhexyl) Phthalate | | 330U | 330U | 330U | 330U | 330U |
| Fluoranthene | | 330U | 330U | 330U | 330U | 330U |
| Fluorene | | 330U | 330U | 330U | 330U | 330U |
| Hexachlorobenzene | | 330U | 330U | 330U | 330U | 330U |
| Hexachlorobutadiene | | 330U | 330U | 330U | 330U | 330U |
| Hexachloroethane | | 330U | 330U | 330U | 330U | 330U |
| Hexachlorocyclopentadiene | | 330U | 330U | 330U | 330U | 330U |
| Indeno (1,2,3 cd) Pyrene | | 330U | 330U | 330U | 330U | 330U |
| Isophorone | | 330U | 330U | 330U | 330U | 330U |
| 2-Methylnaphthalene | | 330U | 330U | 330U | 330U | 330U |
| 2-Methylphenol | | 330U | 330U | 330U | 330U | 330U |
| 4-Methylphenol | | 330U | 330U | 330U | 330U | 330U |
| Naphthalene | | 330U | 330U | 330U | 330U | 330U |
| 2-Nitroaniline | | 800U | 800U | 800U | 800U | 800U |
| 3-Nitroaniline | | 800U | 800U | 800U | 800U | 800U |
| 4-Nitroaniline | | 800U | 800U | 800U | 800U | 800U |
| Nitrobenzene | | 330U | 330U | 330U | 330U | 330U |
| 2-Nitrophenol | | 330U | 330U | 330U | 330U | 330U |
| 4-Nitrophenol | | 800U | 800U | 800U | 800U | 800U |
| N-Nitrosodiphenylamine (1) | | 330U | 330U | 330U | 330U | 330U |
| N-Nitroso-Di-n-Propylamine | | 330U | 330U | 330U | 330U | 330U |
| Di-n-Octyl Phthalate | | 330U | 330U | 330U | 330U | 330U |
| Pentachlorophenol | | 800U | 800U | 800U | 800U | 800U |
| Phenanthrene | | 330U | 330U | 330U | 330U | 330U |
| Phenol | | 330U | 330U | 330U | 330U | 330U |
| Pyrene | | 330U | 330U | 330U | 330U | 330U |
| Pyridine | | 330U | 330U | 330U | 330U | 330U |
| 1,2,4-Trichlorobenzene | | 330U | 330U | 330U | 330U | 330U |
| 2,4,5-Trichlorophenol | | 800U | 800U | 800U | 800U | 800U |
| 2,4,6-Trichlorophenol | | 330U | 330U | 330U | 330U | 330U |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
DUP - Duplicate

BH - Borehole
ug/kg - micrograms per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | Matrix | 021-024 BH-10.0-10.5 | | 021-024 BH-16.0-16.5 | | 021-025 BH-1.5-2.0 | | 021-025 BH-10.0-10.5 | | 021-025 BH-14.0-14.5 | |
|--|--------|-----------------------|------|-----------------------|------|-----------------------|------|-----------------------|------|-----------------------|------|
| | | 7/13/94 9407473-07 | Soil | 7/13/94 9407473-08 | Soil | 7/12/94 9407405-08 | Soil | 7/12/94 9407405-09 | Soil | 7/12/94 9407405-10 | Soil |
| TPH (mg/kg) | | 18 | | 10U | | 15 | | 15 | | 15 | |
| Pesticides/PCBs (ug/kg) | | | | | | | | | | | |
| a-BHC | | 0.67U | | 0.67U | | 0.67U | | 0.67U | | 0.67U | |
| b-BHC | | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | |
| d-BHC | | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | |
| g-BHC | | 1.0U | | 1.0U | | 1.0U | | 1.0U | | 1.0U | |
| Heptachlor | | 1.0U | | 1.0U | | 1.0U | | 1.0U | | 1.0U | |
| Aldrin | | 0.67U | | 0.67U | | 0.67U | | 0.67U | | 0.67U | |
| Heptachlor Epoxide | | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | |
| Endosulfan I | | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | |
| Dieldrin | | 0.33U | | 0.33U | | 0.33U | | 0.33U | | 0.33U | |
| Endrin | | 1.3U | | 1.3U | | 1.3U | | 1.3U | | 1.3U | |
| Endosulfan II | | 1.0U | | 1.0U | | 1.0U | | 1.0U | | 1.0U | |
| 4,4'-DDT | | 2.3U | | 2.3U | | 2.3U | | 2.3U | | 2.3U | |
| Endrin Aldehyde | | 3.3U | | 3.3U | | 3.3U | | 3.3U | | 3.3U | |
| Methoxychlor | | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | |
| a-Chlordane | | 0.33U | | 0.33U | | 0.33U | | 0.33U | | 0.33U | |
| g-Chlordane | | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | |
| 4,4'-DDE | | 0.67U | | 0.67U | | 0.67U | | 0.67U | | 0.67U | |
| 4,4'-DDD | | 3.3U | | 3.3U | | 3.3U | | 3.3U | | 3.3U | |
| Endosulfan Sulfate | | 3.3U | | 3.3U | | 3.3U | | 3.3U | | 3.3U | |
| Endrin Ketone | | 3.3U | | 3.3U | | 3.3U | | 3.3U | | 3.3U | |
| Toxaphene | | 33U | | 33U | | 33U | | 33U | | 33U | |

U - Indicates compound analyzed for but not detected.

BH - Borehole

DU - Duplicate

TPH - Total petroleum hydrocarbons

PCBs - Polychlorinated biphenyls

ug/kg - micrograms per kilogram

mg/kg - milligrams per kilogram

Table J.3
Analytical Results of Soil Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | 021-024 BH-10.0-10.5 7/13/94 9407473-07 | | 021-024 BH-16.0-16.5 7/13/94 9407473-08 | | 021-025 BH-1.5-2.0 7/12/94 9407405-08 | | 021-025 BH-10.0-10.5 7/12/94 9407405-09 | | 021-025 BH-14.0-14.5 7/12/94 9407405-10 | |
|--|---|--|---|--|---|--|---|--|---|--|
| | Soil | | Soil | | Soil | | Soil | | Soil | |
| Pesticides/PCBs (ug/kg) | | | | | | | | | | |
| Chlordane (technical) | | | | | | | | | | |
| PCB-1016 | 1.7U | | 1.7U | | 1.7U | | 1.7U | | 1.7U | |
| PCB-1221 | 17U | | 17U | | 17U | | 17U | | 17U | |
| PCB-1232 | 17U | | 17U | | 17U | | 17U | | 17U | |
| PCB-1242 | 17U | | 17U | | 17U | | 17U | | 17U | |
| PCB-1248 | 17U | | 17U | | 17U | | 17U | | 17U | |
| PCB-1260 | 17U | | 17U | | 17U | | 17U | | 17U | |
| Metals (mg/kg) | | | | | | | | | | |
| Silver | 3U | | 3U | | 0.6U | | 0.6U | | 0.6U | |
| Aluminum | 12,800 | | 8,660 | | 10,100 | | 13,000 | | 12,900 | |
| Arsenic | 1U | | 1U | | 1 | | 1 | | 5U | |
| Beryllium | 2U | | 2U | | 0.8 | | 1.0 | | 1.0 | |
| Cadmium | 0.20 | | 0.07 | | 0.8U | | 0.8U | | 0.8U | |
| Chromium | 23 | | 7 | | 18 | | 24 | | 26 | |
| Copper | 53.4 | | 61.6 | | 38 | | 48 | | 67 | |
| Mercury | 0.1U | | 0.1U | | 0.1U | | 0.1U | | 0.1U | |
| Nickel | 17 | | 17 | | 20 | | 31 | | 22 | |
| Lead | 5.0 | | 2.4 | | 3.9 | | 5.0 | | 3.3 | |
| Antimony | 1U | | 1U | | 1U | | 1U | | 1U | |
| Selenium | 0.8U | | 0.8U | | 0.8U | | 0.8U | | 0.8U | |
| Thallium | 0.4U | | 0.4U | | 0.4U | | 0.4U | | 0.4U | |
| Zinc | 67 | | 52 | | 35 | | 54 | | 39 | |

U - Indicates compound analyzed for but not detected
 BH - Borehole
 DUP - Duplicate

TPH - Total petroleum hydrocarbons
 PCBs - Polychlorinated biphenyls

ug/kg - micrograms per kilogram
 mg/kg - milligrams per kilogram

Table J.4
Analytical Results of Groundwater Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | 021-009MW-GW02 10/6/94 9410269-02 | 021-010MW-GW02 10/6/94 9410269-04 | 021-010MW-GW02 DUP 10/6/94 9410269-05 | 021-014MW-GW02 10/6/94 9410269-03 | 021-026MW-GW02 7/25/94 9407971-01 | 021-026MW-GW03 10/6/94 9410269-06 |
|--|---|---|---|---|---|---|
| VOCs (ug/L) | Water | Water | Water | Water | Water | Water |
| Acetone | 10U | 10U | 10U | 10U | 10U | 10U |
| Benzene | 5U | 5U | 5U | 5U | 5U | 5U |
| Bromodichloromethane | 5U | 5U | 5U | 5U | 5U | 5U |
| Bromoform | 5U | 5U | 5U | 5U | 5U | 5U |
| Bromomethane | 10U | 10U | 10U | 10U | 10U | 10U |
| 2-Butanone | 20U | 20U | 20U | 20U | 20U | 20U |
| Carbon Disulfide | 5U | 5U | 5U | 5U | 5U | 5U |
| Carbon Tetrachloride | 5U | 5U | 5U | 5U | 5U | 5U |
| Chlorobenzene | 5U | 5U | 5U | 5U | 5U | 5U |
| Chloroethane | 10U | 10U | 10U | 10U | 10U | 10U |
| 2-Chloroethylvinylether | 10U | 10U | 10U | 10U | 10U | 10U |
| Chloroform | 5U | 5U | 5U | 5U | 5U | 5U |
| Chloromethane | 10U | 10U | 10U | 10U | 10U | 10U |
| Dibromochloromethane | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1-Dichloroethane | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1-Dichloroethene | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,2-Dichloroethane | 5U | 5U | 5U | 5U | 5U | 5U |
| total - 1,2-Dichloroethene | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,2-Dichloropropane | 5U | 5U | 5U | 5U | 5U | 5U |
| cis-1,3-Dichloropropene | 5U | 5U | 5U | 5U | 5U | 5U |
| trans-1,3-Dichloropropene | 5U | 5U | 5U | 5U | 5U | 5U |
| Ethylbenzene | 5U | 5U | 5U | 5U | 5U | 5U |
| 2-Hexanone | 10U | 10U | 10U | 10U | 10U | 10U |
| Methylene Chloride | 5U | 5U | 5U | 5U | 5U | 5U |
| 4-Methyl-2-Pentanone | 10U | 10U | 10U | 10U | 10U | 10U |
| Styrene | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,2,2-Tetrachloroethane | 5U | 5U | 5U | 5U | 5U | 5U |
| Tetrachloroethene | 5U | 5U | 5U | 5U | 5U | 5U |
| Toluene | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,1-Trichloroethane | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,2-Trichloroethane | 5U | 5U | 5U | 5U | 5U | 5U |
| Trichloroethene | 5U | 5U | 5U | 68 | 5U | 5U |
| Trichlorofluoromethane | 5U | 5U | 5U | 5U | 5U | 5U |
| Vinyl Acetate | 10U | 10U | 10U | 10U | 10U | 10U |
| Vinyl Chloride | 10U | 10U | 10U | 10U | 10U | 10U |
| Xylenes (total) | 5U | 5U | 5U | 5U | 5U | 5U |

U - Indicates compound analyzed for but not detected.
VOCs - Volatile organic compounds

DUP - Duplicate
ug/L - micrograms per liter

Table J.4
Analytical Results of Groundwater Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No: | | 021-009MW-GW01 7/22/94 9407999-03 | 021-010MW-GW01 7/22/94 9407999-05 | 021-010MW-GW01 DUP 7/22/94 9407999-06 | 021-014MW-GW01 7/22/94 9407999-07 | 021-026MW-GW01 7/25/94 9407999-08 | 021-026MW-GW02 7/25/94 9407971-01 |
|---|--------|---|---|---|---|---|---|
| Metals (mg/L) | Matrix | Water | Water | Water | Water | Water | Water |
| Aluminum | | 1.06 | 3.00 | 1.34 | 17.1 | 2.96 | 1.30 |
| Antimony | | 0.01U | 0.01U | 0.01U | 0.01U | 0.01U | 0.01U |
| Arsenic | | 0.01U | 0.01U | 0.01U | 0.01U | 0.01U | 0.01U |
| Beryllium | | 0.004U | 0.004U | 0.004U | 0.004U | 0.004U | 0.004U |
| Cadmium | | 0.0002 | 0.0002 | 0.0001U | 0.0003 | 0.0004 | 0.0002 |
| Chromium | | 0.024 | 0.004 | 0.002U | 0.025 | 0.004 | 0.003 |
| Copper | | 0.02 | 0.02 | 0.01U | 0.17 | 0.03 | 0.02 |
| Lead | | 0.003U | 0.003U | 0.003U | 0.003U | 0.003U | 0.003U |
| Mercury | | 0.0002U | 0.0002U | 0.0002U | 0.0002U | 0.0002U | 0.0002U |
| Nickel | | 0.62 | 0.012 | 0.008 | 0.051 | 0.009 | 0.046 |
| Selenium | | 0.005U | 0.005U | 0.005U | 0.005U | 0.005U | 0.008U |
| Silver | | N/A | N/A | N/A | N/A | N/A | N/A |
| Thallium | | 0.004U | 0.004U | 0.004U | 0.004U | 0.004U | 0.004U |
| Zinc | | 0.03 | 0.02 | 0.02 | 0.07 | 0.02 | 0.02 |

U - Indicates compound analyzed for but not detected.

DUP - Duplicate
mg/L - milligrams per liter

Table J.5
Analytical Results of Sediment Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| VOCs (ug/kg) | Matrix | 021-004SD | | 021-005SD | | 021-006SD | | 021-007SD | | 021-007SD DUP | |
|----------------------------|--------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|---------------|------------|
| | | 10/4/94 | 9410146-05 | 10/4/94 | 9410146-02 | 10/4/94 | 9410146-01 | 10/4/94 | 9410146-04 | 10/4/94 | 9410146-03 |
| | | Sediment | Sediment | Sediment | Sediment | Sediment | Sediment | Sediment | Sediment | Sediment | Sediment |
| Acetone | | 35 | 10U | 10U | 10U | 10U | 10U | 12 | 10U | 22 | 5U |
| Benzene | | 5U | 5 | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Bromodichloromethane | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Bromoform | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Bromomethane | | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| 2-Butanone | | 20U | 20U | 20U | 20U | 20U | 20U | 20U | 20U | 20U | 20U |
| Carbon Disulfide | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Carbon Tetrachloride | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Chlorobenzene | | 5U | 5 | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Chloroethane | | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| 2-Chloroethylvinylether | | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| Chloroform | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Chloromethane | | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| Dibromochloromethane | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1-Dichloroethane | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1-Dichloroethene | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,2-Dichloroethane | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| total - 1,2-Dichloroethene | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,2-Dichloropropane | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| cis-1,3-Dichloropropene | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| trans-1,3-Dichloropropene | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Ethylbenzene | | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| 2-Hexanone | | 13 | 400 | 10U | 10U | 6 | 10U | 23 | 11 | 11 | 10U |
| Methylene Chloride | | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| 4-Methyl-2-Pentanone | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Styrene | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,2,2-Tetrachloroethane | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Tetrachloroethene | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Toluene | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,1-Trichloroethane | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,2-Trichloroethane | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Trichloroethene | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Trichlorofluoromethane | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Vinyl Acetate | | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| Vinyl Chloride | | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| Xylenes (total) | | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |

U - Indicates compound analyzed for but not detected.

VOCs - Volatile organic compounds

SD - Sediment

DUP - Duplicate
ug/kg - micrograms per kilogram

Table J.5
Analytical Results of Sediment Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/kg) | Location No.: | | 021-004SD | | 021-005SD | | 021-006SD | | 021-007SD | | 021-007SD DUP | |
|-----------------------------|---------------|--------|------------|----------|------------|----------|------------|----------|------------|----------|---------------|----------|
| | Sample Date: | Matrix | 10/4/94 | Sediment | 10/4/94 | Sediment | 10/4/94 | Sediment | 10/4/94 | Sediment | 10/4/94 | Sediment |
| Lab Sample No.: | 9410146-05 | | 9410146-02 | | 9410146-01 | | 9410146-04 | | 9410146-03 | | | |
| Acenaphthene | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Acenaphthylene | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Aniline | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Anthracene | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Benzo (a) Anthracene | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Benzo (b) Fluoranthene | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Benzo (k) Fluoranthene | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Benzo (a) Pyrene | 530 | | 770 | | 3000 | | 330U | | 330U | | 330U | |
| Benzoic Acid | 1,600U | | 1,600U | | 1,600U | | 1,600U | | 1,600U | | 1,600U | |
| Benzo(g,h,i)Perylene | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Benzyl alcohol | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 4-Bromophenylphenyl ether | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Butylbenzylphthalate | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| di-n-Butyl phthalate | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Carbazole | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 4-Chloroaniline | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| bis(2-Chloroethoxy)Methane | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| bis(2-Chloroethyl)Ether | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| bis(2-Chloroisopropyl)Ether | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 4-Chloro-3-Methylphenol | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 2-Chloronaphthalene | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 2-Chlorophenol | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 4-Chlorophenylphenyl ether | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Chrysene | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Dibenz(a,h)Anthracene | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Dibenzofuran | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 1,2-Dichlorobenzene | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 1,3-Dichlorobenzene | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 1,4-Dichlorobenzene | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 3,3'-Dichlorobenzidine | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 2,4-Dichlorophenol | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Diethylphthalate | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 2,4-Dimethylphenol | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Dimethyl Phthalate | 330U | | 330U | | 330U | | 330U | | 330U | | 330U | |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
SD - Sediment

DUP - Duplicate
ug/kg - micrograms per kilogram

Table J.5
Analytical Results of Sediment Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: | | 021-004SD 10/4/94 | | 021-005SD 10/4/94 | | 021-006SD 10/4/94 | | 021-007SD 10/4/94 | | 021-007SD DUP 10/4/94 | |
|-------------------------------|--------|----------------------|----------|----------------------|----------|----------------------|----------|----------------------|----------|--------------------------|----------|
| Lab Sample No.: | | 9410146-05 | | 9410146-02 | | 9410146-01 | | 9410146-04 | | 9410146-03 | |
| SVOCs (ug/kg) | Matrix | Sediment | Sediment | Sediment | Sediment | Sediment | Sediment | Sediment | Sediment | Sediment | Sediment |
| 4,6-Dinitro-2-Methylphenol | | 800U | | 800U | | 800U | | 800U | | 800U | |
| 2,4-Dinitrophenol | | 800U | | 800U | | 800U | | 800U | | 800U | |
| 2,4-Dinitrotoluene | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 2,6-Dinitrotoluene | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 1,2-Diphenylhydrazine | | 330U | | 330U | | 330U | | 330U | | 330U | |
| bis (2-Ethylhexyl) Phthalate | | 330U | | 470 | | 1,600 | | 330U | | 330U | |
| Fluoranthene | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Phenanthrene | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Hexachlorobenzene | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Hexachlorobutadiene | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Hexachloroethane | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Hexachlorocyclopentadiene | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Indeno (1,2,3-cd) Pyrene | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Isophorone | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 2-Methylnaphthalene | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 2-Methylphenol | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 4-Methylphenol | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Naphthalene | | 330U | | 520 | | 330U | | 330U | | 330U | |
| 2-Nitroaniline | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 3-Nitroaniline | | 800U | | 800U | | 800U | | 800U | | 800U | |
| 4-Nitroaniline | | 800U | | 800U | | 800U | | 800U | | 800U | |
| Nitrobenzene | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 2-Nitrophenol | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 4-Nitrophenol | | 800U | | 800U | | 800U | | 800U | | 800U | |
| N-Nitrosodiphenylamine (1) | | 330U | | 330U | | 330U | | 330U | | 330U | |
| N-Nitroso-Di-n-Propylamine | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Di-n-Octyl Phthalate | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Pentachlorophenol | | 800U | | 800U | | 800U | | 800U | | 800U | |
| Phenanthrene | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Phenol | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Pyrene | | 330U | | 330U | | 330U | | 330U | | 330U | |
| Pyridine | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 1,2,4-Trichlorobenzene | | 330U | | 330U | | 330U | | 330U | | 330U | |
| 2,4,5-Trichlorophenol | | 800U | | 800U | | 800U | | 800U | | 800U | |
| 2,4,6-Trichlorophenol | | 330U | | 330U | | 330U | | 330U | | 330U | |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
SD - Sediment

DUP - Duplicate
ug/kg - micrograms per kilogram

Table J.5
Analytical Results of Sediment Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: | | 021-004SD 10/4/94 | 021-005SD 10/4/94 | 021-006SD 10/4/94 | 021-007SD 10/4/94 | 021-007SD DUP 10/4/94 |
|-------------------------------|--------|----------------------|----------------------|----------------------|----------------------|--------------------------|
| Lab Sample No.: | | 9410146-05 | 9410146-02 | 9410146-01 | 9410146-04 | 9410146-03 |
| Pesticides | Matrix | Sediment | Sediment | Sediment | Sediment | Sediment |
| TPH (mg/kg) | | 450 | 230 | 20 | 74 | 120 |
| Pesticides/PCBs (ug/kg) | | | | | | |
| a-BHC | | 0.67U | 0.67U | 0.67U | 0.67U | 0.67U |
| b-BHC | | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| γ-BHC | | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| δ-BHC | | 1.0U | 1.0U | 1.0U | 1.0U | 1.0U |
| Heptachlor | | 1.0U | 1.0U | 1.0U | 1.0U | 1.0U |
| Aldrin | | 0.67U | 0.67U | 0.67U | 0.67U | 0.67U |
| Heptachlor Epoxide | | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| Endosulfan I | | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| Dieldrin | | 0.33U | 0.33U | 0.33U | 0.33U | 0.33U |
| Endrin | | 1.3U | 1.3U | 1.3U | 1.3U | 1.3U |
| Endosulfan II | | 1.0U | 1.0U | 1.0U | 1.0U | 1.0U |
| 1,4'-DDT | | 2.3U | 2.3U | 2.3U | 2.3U | 2.3U |
| Endrin Aldehyde | | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U |
| Methoxychlor | | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| α-Chlordane | | 0.33U | 0.33U | 0.33U | 0.33U | 0.33U |
| γ-Chlordane | | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| 4,4'-DDE | | 0.67U | 0.67U | 0.67U | 0.67U | 0.67U |
| 4,4'-DDD | | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U |
| Endosulfan Sulfate | | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U |
| Endrin Ketone | | 3.3U | 3.3U | 3.3U | 3.3U | 3.3U |
| Toxaphene | | 33U | 33U | 33U | 33U | 33U |
| Chlordane (technical) | | 1.7U | 1.7U | 1.7U | 1.7U | 1.7U |
| PCB-1016 | | 17U | 17U | 17U | 17U | 17U |
| PCB-1221 | | 17U | 17U | 17U | 17U | 17U |
| PCB-1232 | | 17U | 17U | 17U | 17U | 17U |
| PCB-1242 | | 17U | 17U | 17U | 17U | 17U |
| PCB-1248 | | 17U | 17U | 17U | 17U | 17U |
| PCB-1254 | | 17U | 17U | 17U | 17U | 17U |
| PCB-1260 | | 17U | 17U | 17U | 17U | 17U |

DUP - Duplicate
SD - Sediment
mg/kg - milligrams per kilogram
ug/kg - micrograms per kilogram

U - Indicates compound analyzed for but not detected
TPH - Total petroleum hydrocarbons
PCBs - Polychlorinated biphenyls

Table J.5
Analytical Results of Sediment Samples Collected from Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Metals (mg/kg) | Location No.: Sample Date: Lab Sample No: | 021-004SD | | 021-005SD | | 021-005ASD | | 021-006SD | | 021-007SD | |
|----------------|---|-----------|-------|-----------|--------|------------|-------|-----------|------|-----------|------|
| | | Matrix | Soil | Soil | Soil | Soil | Soil | Soil | Soil | Soil | Soil |
| Aluminum | | | 1,870 | 11,100 | 10,100 | 10,100 | 9,070 | 4,800 | | | |
| Antimony | | | 1U | 1U | 1U | 1U | 1U | 1U | | | |
| Arsenic | | | 1U | 5U | 1 | 1 | 5 | 2 | | | |
| Beryllium | | | 0.4U | 0.6 | 0.6 | 0.6 | 0.7 | 0.4U | | | |
| Cadmium | | | 1.1 | 1.3 | 0.8U | 0.8U | 0.8U | 1.3 | | | |
| Chromium | | | 3 | 17 | 17 | 17 | 16 | 7 | | | |
| Copper | | | 53 | 56 | 19 | 19 | 76 | 50 | | | |
| Lead | | | 5.5 | 26 | 1.3 | 1.3 | 36 | 7.5 | | | |
| Mercury | | | 0.1U | 0.1U | 0.1U | 0.1U | 0.1U | 0.1U | | | |
| Nickel | | | 6U | 16 | 11 | 11 | 14 | 9 | | | |
| Selenium | | | 0.8U | 0.8U | 0.8U | 0.8U | 0.8U | 0.8U | | | |
| Silver | | | N/A | N/A | N/A | N/A | N/A | N/A | | | |
| Thallium | | | 0.4U | 0.4U | 0.4U | 0.4U | 0.4U | 0.4U | | | |
| Zinc | | | 48 | 70 | 43 | 43 | 135 | 53 | | | |

U - Indicates compound analyzed for but not detected.

SD - Sediment

DUP - Duplicate
mg/kg - milligrams per kilogram

Table J.6
Analytical Results of SVOCs and Metals in Soil Samples at Site No. 17
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs | Location No.: | 017-021BH 1.5 - 2 | 017-021BH 5 - 5.5 |
|-----------------------------|-----------------|-------------------|-------------------|
| | Sample Date: | 5/19/95 | 5/19/95 |
| | Lab Sample No.: | 9505766-02 | 9505766-03 |
| | Matrix: | Soil | Soil |
| Acenaphthene | | 330 U | 330 U |
| Acenaphthylene | | 330 U | 330 U |
| Aniline | | 330 U | 330 U |
| Anthracene | | 330 U | 330 U |
| Benzo(a)anthracene | | 330 U | 330 U |
| Benzo(b)fluoranthene | | 330 U | 330 U |
| Benzo(k)fluoranthene | | 330 U | 330 U |
| Benzo(a)pyrene | | 330 U | 330 U |
| Benzoic acid | | 1,600 U | 1,600 U |
| Benzo(g,h,i)perylene | | 330 U | 330 U |
| Benzyl alcohol | | 330 U | 330 U |
| 4-Bromophenylphenyl ether | | 330 U | 330 U |
| Butylbenzylphthalate | | 330 U | 330 U |
| Di-n-butyl phthalate | | 330 U | 330 U |
| Carbazole | | 330 U | 330 U |
| 4-Chloroaniline | | 330 U | 330 U |
| Bis(2-chloroethoxy)methane | | 330 U | 330 U |
| Bis(2-chloroethyl)ether | | 330 U | 330 U |
| Bis(2-chloroisopropyl)ether | | 330 U | 330 U |
| 4-Chloro-3-methylphenol | | 330 U | 330 U |
| 2-Chloronaphthalene | | 330 U | 330 U |
| 2-Chlorophenol | | 330 U | 330 U |
| 4-Chlorophenylphenyl ether | | 330 U | 330 U |
| Chrysene | | 330 U | 330 U |
| Dibenz(a,h)anthracene | | 330 U | 330 U |
| Dibenzofuran | | 330 U | 330 U |
| 1,2-Dichlorobenzene | | 330 U | 330 U |
| 1,3-Dichlorobenzene | | 330 U | 330 U |
| 1,4-Dichlorobenzene | | 330 U | 330 U |
| 3,3'-Dichlorobenzidine | | 330 U | 330 U |
| 2,4-Dichlorophenol | | 330 U | 330 U |
| Diethylphthalate | | 330 U | 330 U |
| 2,4-Dimethylphenol | | 330 U | 330 U |
| Dimethyl phthalate | | 330 U | 330 U |
| 4,6-Dinitro-2-methylphenol | | 800 U | 800 U |
| 2,4-Dinitrophenol | | 800 U | 800 U |

Table J.6
Analytical Results of SVOCs and Metals in Soil Samples at Site No. 17
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs | Location No.: | 017-021BH 1.5 - 2 | 017-021BH 5 - 5.5 |
|----------------------------|-----------------|-------------------|-------------------|
| | Sample Date: | 5/19/95 | 5/19/95 |
| | Lab Sample No.: | 9505766-02 | 9505766-03 |
| | Matrix: | Soil | Soil |
| 2,4-Dinitrotoluene | | 330 U | 330 U |
| 2,6-Dinitrotoluene | | 330 U | 330 U |
| 1,2-Diphenylhydrazine | | 330 U | 330 U |
| Bis(2-ethylhexyl)phthalate | | 330 U | 330 U |
| Fluoranthene | | 330 U | 330 U |
| Fluorene | | 330 U | 330 U |
| Hexachlorobenzene | | 330 U | 330 U |
| Hexachlorobutadiene | | 330 U | 330 U |
| Hexachloroethane | | 330 U | 330 U |
| Hexachlorocyclopentadiene | | 330 U | 330 U |
| Indeno(1,2,3-cd)pyrene | | 330 U | 330 U |
| Isophorone | | 330 U | 330 U |
| 2-Methylnaphthalene | | 330 U | 330 U |
| 2-Methylphenol | | 330 U | 330 U |
| 4-Methylphenol | | 330 U | 330 U |
| Naphthalene | | 330 U | 330 U |
| 2-Nitroaniline | | 800 U | 800 U |
| 3-Nitroaniline | | 800 U | 800 U |
| 4-Nitroaniline | | 800 U | 800 U |
| Nitrobenzene | | 330 U | 330 U |
| 2-Nitrophenol | | 330 U | 330 U |
| 4-Nitrophenol | | 800 U | 800 U |
| N-Nitrosodiphenylamine (1) | | 330 U | 330 U |
| N-Nitroso-di-n-propylamine | | 330 U | 330 U |
| Di-n-octyl phthalate | | 330 U | 330 U |
| Pentachlorophenol | | 800 U | 800 U |
| Phenanthrene | | 330 U | 330 U |
| Phenol | | 330 U | 330 U |
| Pyrene | | 330 U | 330 U |
| Pyridine | | 330 U | 330 U |
| 1,2,4-Trichlorobenzene | | 330 U | 330 U |
| 2,4,5-Trichlorophenol | | 800 U | 800 U |
| 2,4,6-Trichlorophenol | | 330 U | 330 U |
| Metals | Location No.: | 017-021BH 1.5 - 2 | 017-021BH 5 - 5.5 |
| | Sample Date: | 5/19/95 | 5/19/95 |
| | Lab Sample No.: | 9505766-02 | 9505766-03 |
| | Matrix: | Soil | Soil |
| Mercury, Total | | 0.4 U | 0.4 U |

Table J.6
Analytical Results of SVOCs and Metals in Soil Samples at Site No. 17
Minnesota Air National Guard Base
Duluth, Minnesota

| | Location No.: | 017-022BH 1.5 - 2 | 017-023BH 1.5 - 2 | 017-023BH 5 - 5.5 |
|-----------------------------|-----------------|-------------------|-------------------|-------------------|
| | Sample Date: | 5/17/95 | 5/17/95 | 5/17/95 |
| | Lab Sample No.: | 9505673-09 | 9505673-10 | 9505673-11 |
| SVOCs | Matrix: | Soil | Soil | Soil |
| Acenaphthene | | 3,300 U | 330 U | 330 U |
| Acenaphthylene | | 3,300 U | 330 U | 330 U |
| Aniline | | 3,300 U | 330 U | 330 U |
| Anthracene | | 3,300 U | 330 U | 330 U |
| Benzo(a)anthracene | | 3,300 U | 330 U | 330 U |
| Benzo(b)fluoranthene | | 3,300 U | 330 U | 330 U |
| Benzo(k)fluoranthene | | 3,300 U | 330 U | 330 U |
| Benzo(a)pyrene | | 3,300 U | 330 U | 330 U |
| Benzoic acid | | 16,000 U | 1,600 U | 1,600 U |
| Benzo(g,h,i)perylene | | 3,300 U | 330 U | 330 U |
| Benzyl alcohol | | 3,300 U | 330 U | 330 U |
| 4-Bromophenylphenyl ether | | 3,300 U | 330 U | 330 U |
| Butylbenzylphthalate | | 3,300 U | 330 U | 330 U |
| Di-n-butyl phthalate | | 3,300 U | 330 U | 330 U |
| Carbazole | | 3,300 U | 330 U | 330 U |
| 4-Chloroaniline | | 3,300 U | 330 U | 330 U |
| Bis(2-chloroethoxy)methane | | 3,300 U | 330 U | 330 U |
| Bis(2-chloroethyl)ether | | 3,300 U | 330 U | 330 U |
| Bis(2-chloroisopropyl)ether | | 3,300 U | 330 U | 330 U |
| 4-Chloro-3-methylphenol | | 3,300 U | 330 U | 330 U |
| 2-Chloronaphthalene | | 3,300 U | 330 U | 330 U |
| 2-Chlorophenol | | 3,300 U | 330 U | 330 U |
| 4-Chlorophenylphenyl ether | | 3,300 U | 330 U | 330 U |
| Chrysene | | 3,300 U | 330 U | 330 U |
| Dibenz(a,h)anthracene | | 3,300 U | 330 U | 330 U |
| Dibenzofuran | | 3,300 U | 330 U | 330 U |
| 1,2-Dichlorobenzene | | 3,300 U | 330 U | 330 U |
| 1,3-Dichlorobenzene | | 3,300 U | 330 U | 330 U |
| 1,4-Dichlorobenzene | | 3,300 U | 330 U | 330 U |
| 3,3'-Dichlorobenzidine | | 3,300 U | 330 U | 330 U |
| 2,4-Dichlorophenol | | 3,300 U | 330 U | 330 U |
| Diethylphthalate | | 3,300 U | 330 U | 330 U |
| 2,4-Dimethylphenol | | 3,300 U | 330 U | 330 U |
| Dimethyl Phthalate | | 3,300 U | 330 U | 330 U |
| 4,6-Dinitro-2-methylphenol | | 8,000 U | 800 U | 800 U |
| 2,4-Dinitrophenol | | 8,000 U | 800 U | 800 U |

Table J.6
Analytical Results of SVOCs and Metals in Soil Samples at Site No. 17
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs | Location No.: | 017-022BH 1.5 - 2 | 017-023BH 1.5 - 2 | 017-023BH 5 - 5.5 |
|----------------------------|-----------------|-------------------|-------------------|-------------------|
| | Sample Date: | 5/17/95 | 5/17/95 | 5/17/95 |
| | Lab Sample No.: | 9505673-09 | 9505673-10 | 9505673-11 |
| | Matrix: | Soil | Soil | Soil |
| 2,4-Dinitrotoluene | | 3,300 U | 330 U | 330 U |
| 2,6-Dinitrotoluene | | 3,300 U | 330 U | 330 U |
| 1,2-Diphenylhydrazine | | 3,300 U | 330 U | 330 U |
| Bis(2-ethylhexyl)phthalate | | 3,300 U | 330 U | 330 U |
| Fluoranthene | | 3,300 U | 330 U | 330 U |
| Fluorene | | 3,300 U | 330 U | 330 U |
| Hexachlorobenzene | | 3,300 U | 330 U | 330 U |
| Hexachlorobutadiene | | 3,300 U | 330 U | 330 U |
| Hexachloroethane | | 3,300 U | 330 U | 330 U |
| Hexachlorocyclopentadiene | | 3,300 U | 330 U | 330 U |
| Indeno(1,2,3-cd)pyrene | | 3,300 U | 330 U | 330 U |
| Isophorone | | 3,300 U | 330 U | 330 U |
| 2-Methylnaphthalene | | 3,300 U | 330 U | 330 U |
| 2-Methylphenol | | 3,300 U | 330 U | 330 U |
| 4-Methylphenol | | 3,300 U | 330 U | 330 U |
| Naphthalene | | 3,300 U | 330 U | 330 U |
| 2-Nitroaniline | | 8,000 U | 800 U | 800 U |
| 3-Nitroaniline | | 8,000 U | 800 U | 800 U |
| 4-Nitroaniline | | 8,000 U | 800 U | 800 U |
| Nitrobenzene | | 3,300 U | 330 U | 330 U |
| 2-Nitrophenol | | 3,300 U | 330 U | 330 U |
| 4-Nitrophenol | | 8,000 U | 800 U | 800 U |
| N-Nitrosodiphenylamine (1) | | 3,300 U | 330 U | 330 U |
| N-Nitroso-di-n-propylamine | | 3,300 U | 330 U | 330 U |
| Di-n-octyl phthalate | | 3,300 U | 330 U | 330 U |
| Pentachlorophenol | | 8,000 U | 800 U | 800 U |
| Phenanthrene | | 3,300 U | 330 U | 330 U |
| Phenol | | 3,300 U | 330 U | 330 U |
| Pyrene | | 3,300 U | 330 U | 330 U |
| Pyridine | | 3,300 U | 330 U | 330 U |
| 1,2,4-Trichlorobenzene | | 3,300 U | 330 U | 330 U |
| 2,4,5-Trichlorophenol | | 8,000 U | 800 U | 800 U |
| 2,4,6-Trichlorophenol | | 3,300 U | 330 U | 330 U |
| Metals | Location No.: | 017-022BH 1.5 - 2 | 017-023BH 1.5 - 2 | 017-023BH 5 - 5.5 |
| | Sample Date: | 5/17/95 | 5/17/95 | 5/17/95 |
| | Lab Sample No.: | 9505673-09 | 9505673-10 | 9505673-11 |
| | Matrix: | Soil | Soil | Soil |
| Mercury, Total | | 0.1 U | 0.1 U | 0.1 U |

Table J.6
Analytical Results of SVOCs and Metals in Soil Samples at Site No. 17
Minnesota Air National Guard Base
Duluth, Minnesota

| | Location No.: | 017-024BH 2 - 2.5 | 017-024BH 5.5 - 6 | 017-025BH 2 - 2.5 |
|-----------------------------|-----------------|-------------------|-------------------|-------------------|
| | Sample Date: | 5/17/95 | 5/17/95 | 5/17/95 |
| | Lab Sample No.: | 9505673-05 | 9505673-06 | 9505673-07 |
| SVOCs | Matrix: | Soil | Soil | Soil |
| Acenaphthene | | 3,300 U | 3,300 U | 3,300 U |
| Acenaphthylene | | 3,300 U | 3,300 U | 3,300 U |
| Aniline | | 3,300 U | 3,300 U | 3,300 U |
| Anthracene | | 3,300 U | 3,300 U | 3,300 U |
| Benzo(a)anthracene | | 3,300 U | 3,300 U | 3,300 U |
| Benzo(b)fluoranthene | | 3,300 U | 3,300 U | 3,300 U |
| Benzo(k)fluoranthene | | 3,300 U | 3,300 U | 3,300 U |
| Benzo(a)pyrene | | 3,300 U | 3,300 U | 3,300 U |
| Benzoic acid | | 16,000 U | 16,000 U | 16,000 U |
| Benzo(g,h,i)perylene | | 3,300 U | 3,300 U | 3,300 U |
| Benzyl alcohol | | 3,300 U | 3,300 U | 3,300 U |
| 4-Bromophenylphenyl ether | | 3,300 U | 3,300 U | 3,300 U |
| Butylbenzylphthalate | | 3,300 U | 3,300 U | 3,300 U |
| Di-n-butyl phthalate | | 3,300 U | 3,300 U | 3,300 U |
| Carbazole | | 3,300 U | 3,300 U | 3,300 U |
| 4-Chloroaniline | | 3,300 U | 3,300 U | 3,300 U |
| Bis(2-chloroethoxy)methane | | 3,300 U | 3,300 U | 3,300 U |
| Bis(2-chloroethyl)ether | | 3,300 U | 3,300 U | 3,300 U |
| Bis(2-chloroisopropyl)ether | | 3,300 U | 3,300 U | 3,300 U |
| 4-Chloro-3-methylphenol | | 3,300 U | 3,300 U | 3,300 U |
| 2-Chloronaphthalene | | 3,300 U | 3,300 U | 3,300 U |
| 2-Chlorophenol | | 3,300 U | 3,300 U | 3,300 U |
| 4-Chlorophenylphenyl ether | | 3,300 U | 3,300 U | 3,300 U |
| Chrysene | | 3,300 U | 3,300 U | 3,300 U |
| Dibenz(a,h)anthracene | | 3,300 U | 3,300 U | 3,300 U |
| Dibenzofuran | | 3,300 U | 3,300 U | 3,300 U |
| 1,2-Dichlorobenzene | | 3,300 U | 3,300 U | 3,300 U |
| 1,3-Dichlorobenzene | | 3,300 U | 3,300 U | 3,300 U |
| 1,4-Dichlorobenzene | | 3,300 U | 3,300 U | 3,300 U |
| 3,3'-Dichlorobenzidine | | 3,300 U | 3,300 U | 3,300 U |
| 2,4-Dichlorophenol | | 3,300 U | 3,300 U | 3,300 U |
| Diethylphthalate | | 3,300 U | 3,300 U | 3,300 U |
| 2,4-Dimethylphenol | | 3,300 U | 3,300 U | 3,300 U |
| Dimethyl Phthalate | | 3,300 U | 3,300 U | 3,300 U |
| 4,6-Dinitro-2-methylphenol | | 8,000 U | 8,000 U | 8,000 U |
| 2,4-Dinitrophenol | | 8,000 U | 8,000 U | 8,000 U |

Table J.6
Analytical Results of SVOCs and Metals in Soil Samples at Site No. 17
Minnesota Air National Guard Base
Duluth, Minnesota

| | Location No.: | 017-024BH 2 - 2.5 | 017-024BH 5.5 - 6 | 017-025BH 2 - 2.5 |
|----------------------------|-----------------|-------------------|-------------------|-------------------|
| | Sample Date: | 5/17/95 | 5/17/95 | 5/17/95 |
| | Lab Sample No.: | 9505673-05 | 9505673-06 | 9505673-07 |
| SVOCs | Matrix: | Soil | Soil | Soil |
| 2,4-Dinitrotoluene | | 3,300 U | 3,300 U | 3,300 U |
| 2,6-Dinitrotoluene | | 3,300 U | 3,300 U | 3,300 U |
| 1,2-Diphenylhydrazine | | 3,300 U | 3,300 U | 3,300 U |
| Bis(2-ethylhexyl)phthalate | | 3,300 U | 3,300 U | 3,300 U |
| Fluoranthene | | 3,300 U | 3,300 U | 6,000 |
| Fluorene | | 3,300 U | 3,300 U | 3,300 U |
| Hexachlorobenzene | | 3,300 U | 3,300 U | 3,300 U |
| Hexachlorobutadiene | | 3,300 U | 3,300 U | 3,300 U |
| Hexachloroethane | | 3,300 U | 3,300 U | 3,300 U |
| Hexachlorocyclopentadiene | | 3,300 U | 3,300 U | 3,300 U |
| Indeno(1,2,3-cd)pyrene | | 3,300 U | 3,300 U | 3,300 U |
| Isophorone | | 3,300 U | 3,300 U | 3,300 U |
| 2-Methylnaphthalene | | 3,300 U | 3,300 U | 3,300 U |
| 2-Methylphenol | | 3,300 U | 3,300 U | 3,300 U |
| 4-Methylphenol | | 3,300 U | 3,300 U | 3,300 U |
| Naphthalene | | 3,300 U | 3,300 U | 3,300 U |
| 2-Nitroaniline | | 8,000 U | 8,000 U | 8,000 U |
| 3-Nitroaniline | | 8,000 U | 8,000 U | 8,000 U |
| 4-Nitroaniline | | 8,000 U | 8,000 U | 8,000 U |
| Nitrobenzene | | 3,300 U | 3,300 U | 3,300 U |
| 2-Nitrophenol | | 3,300 U | 3,300 U | 3,300 U |
| 4-Nitrophenol | | 8,000 U | 8,000 U | 8,000 U |
| N-Nitrosodiphenylamine (1) | | 3,300 U | 3,300 U | 3,300 U |
| N-Nitroso-di-n-propylamine | | 3,300 U | 3,300 U | 3,300 U |
| Di-n-octyl phthalate | | 3,300 U | 3,300 U | 3,300 U |
| Pentachlorophenol | | 8,000 U | 8,000 U | 8,000 U |
| Phenanthrene | | 3,300 U | 3,300 U | 4,400 |
| Phenol | | 3,300 U | 3,300 U | 3,300 U |
| Pyrene | | 3,300 U | 3,300 U | 4,300 |
| Pyridine | | 3,300 U | 3,300 U | 3,300 U |
| 1,2,4-Trichlorobenzene | | 3,300 U | 3,300 U | 3,300 U |
| 2,4,5-Trichlorophenol | | 8,000 U | 8,000 U | 8,000 U |
| 2,4,6-Trichlorophenol | | 3,300 U | 3,300 U | 3,300 U |
| | Location No.: | 017-024BH 2 - 2.5 | 017-024BH 5.5 - 6 | 017-025BH 2 - 2.5 |
| | Sample Date: | 5/17/95 | 5/17/95 | 5/17/95 |
| | Lab Sample No.: | 9505673-05 | 9505673-06 | 9505673-07 |
| Metals | Matrix: | Soil | Soil | Soil |
| Mercury, Total | | 0.1 U | 0.2 | 0.1 U |

Table J.6
Analytical Results of SVOCs and Metals in Soil Samples at Site No. 17
Minnesota Air National Guard Base
Duluth, Minnesota

| | Location No.: | 017-025BH 5 - 5.5 | 017-028BH 1.5 - 2 | 017-028BH 5 - 5.5 |
|-----------------------------|-----------------|-------------------|-------------------|-------------------|
| | Sample Date: | 5/17/95 | 5/17/95 | 5/17/95 |
| | Lab Sample No.: | 9505673-08 | 9505673-12 | 9505673-13 |
| SVOCs | Matrix: | Soil | Soil | Soil |
| Acenaphthene | | 3,300 U | 3,300 U | 3,300 U |
| Acenaphthylene | | 3,300 U | 3,300 U | 3,300 U |
| Aniline | | 3,300 U | 3,300 U | 3,300 U |
| Anthracene | | 3,300 U | 3,300 U | 3,300 U |
| Benzo(a)anthracene | | 3,300 U | 3,300 U | 3,300 U |
| Benzo(b)fluoranthene | | 3,300 U | 3,300 U | 3,300 U |
| Benzo(k)fluoranthene | | 3,300 U | 3,300 U | 3,300 U |
| Benzo(a)pyrene | | 3,300 U | 3,300 U | 3,300 U |
| Benzoic acid | | 16,000 U | 16,000 U | 16,000 U |
| Benzo(g,h,i)perylene | | 3,300 U | 3,300 U | 3,300 U |
| Benzyl alcohol | | 3,300 U | 3,300 U | 3,300 U |
| 4-Bromophenylphenyl ether | | 3,300 U | 3,300 U | 3,300 U |
| Butylbenzylphthalate | | 3,300 U | 3,300 U | 3,300 U |
| Di-n-butyl phthalate | | 3,300 U | 3,300 U | 3,300 U |
| Carbazole | | 3,300 U | 3,300 U | 3,300 U |
| 4-Chloroaniline | | 3,300 U | 3,300 U | 3,300 U |
| Bis(2-chloroethoxy)methane | | 3,300 U | 3,300 U | 3,300 U |
| Bis(2-chloroethyl)ether | | 3,300 U | 3,300 U | 3,300 U |
| Bis(2-chloroisopropyl)ether | | 3,300 U | 3,300 U | 3,300 U |
| 4-Chloro-3-methylphenol | | 3,300 U | 3,300 U | 3,300 U |
| 2-Chloronaphthalene | | 3,300 U | 3,300 U | 3,300 U |
| 2-Chlorophenol | | 3,300 U | 3,300 U | 3,300 U |
| 4-Chlorophenylphenyl ether | | 3,300 U | 3,300 U | 3,300 U |
| Chrysene | | 3,300 U | 3,300 U | 3,300 U |
| Dibenz(a,h)anthracene | | 3,300 U | 3,300 U | 3,300 U |
| Dibenzofuran | | 3,300 U | 3,300 U | 3,300 U |
| 1,2-Dichlorobenzene | | 3,300 U | 3,300 U | 3,300 U |
| 1,3-Dichlorobenzene | | 3,300 U | 3,300 U | 3,300 U |
| 1,4-Dichlorobenzene | | 3,300 U | 3,300 U | 3,300 U |
| 3,3'-Dichlorobenzidine | | 3,300 U | 3,300 U | 3,300 U |
| 2,4-Dichlorophenol | | 3,300 U | 3,300 U | 3,300 U |
| Diethylphthalate | | 3,300 U | 3,300 U | 3,300 U |
| 2,4-Dimethylphenol | | 3,300 U | 3,300 U | 3,300 U |
| Dimethyl Phthalate | | 3,300 U | 3,300 U | 3,300 U |
| 4,6-Dinitro-2-methylphenol | | 8,000 U | 8,000 U | 8,000 U |
| 2,4-Dinitrophenol | | 8,000 U | 8,000 U | 8,000 U |

Table J.6
Analytical Results of SVOCs and Metals in Soil Samples at Site No. 17
Minnesota Air National Guard Base
Duluth, Minnesota

| | Location No.: | 017-025BH 5 - 5.5 | 017-028BH 1.5 - 2 | 017-028BH 5 - 5.5 |
|----------------------------|-----------------|-------------------|-------------------|-------------------|
| | Sample Date: | 5/17/95 | 5/17/95 | 5/17/95 |
| | Lab Sample No.: | 9505673-08 | 9505673-12 | 9505673-13 |
| SVOCs | Matrix: | Soil | Soil | Soil |
| 2,4-Dinitrotoluene | | 3,300 U | 3,300 U | 3,300 U |
| 2,6-Dinitrotoluene | | 3,300 U | 3,300 U | 3,300 U |
| 1,2-Diphenylhydrazine | | 3,300 U | 3,300 U | 3,300 U |
| Bis(2-ethylhexyl)phthalate | | 3,300 U | 3,300 U | 3,300 U |
| Fluoranthene | | 3,300 U | 3,300 U | 3,300 U |
| Fluorene | | 3,300 U | 3,300 U | 3,300 U |
| Hexachlorobenzene | | 3,300 U | 3,300 U | 3,300 U |
| Hexachlorobutadiene | | 3,300 U | 3,300 U | 3,300 U |
| Hexachloroethane | | 3,300 U | 3,300 U | 3,300 U |
| Hexachlorocyclopentadiene | | 3,300 U | 3,300 U | 3,300 U |
| Indeno(1,2,3-cd)pyrene | | 3,300 U | 3,300 U | 3,300 U |
| Isophorone | | 3,300 U | 3,300 U | 3,300 U |
| 2-Methylnaphthalene | | 3,300 U | 3,300 U | 3,300 U |
| 2-Methylphenol | | 3,300 U | 3,300 U | 3,300 U |
| 4-Methylphenol | | 3,300 U | 3,300 U | 3,300 U |
| Naphthalene | | 3,300 U | 3,300 U | 3,300 U |
| 2-Nitroaniline | | 8,000 U | 8,000 U | 8,000 U |
| 3-Nitroaniline | | 8,000 U | 8,000 U | 8,000 U |
| 4-Nitroaniline | | 8,000 U | 8,000 U | 8,000 U |
| Nitrobenzene | | 3,300 U | 3,300 U | 3,300 U |
| 2-Nitrophenol | | 3,300 U | 3,300 U | 3,300 U |
| 4-Nitrophenol | | 8,000 U | 8,000 U | 8,000 U |
| N-Nitrosodiphenylamine (1) | | 3,300 U | 3,300 U | 3,300 U |
| N-Nitroso-di-n-propylamine | | 3,300 U | 3,300 U | 3,300 U |
| Di-n-octyl phthalate | | 3,300 U | 3,300 U | 3,300 U |
| Pentachlorophenol | | 8,000 U | 8,000 U | 8,000 U |
| Phenanthrene | | 3,300 U | 3,300 U | 3,300 U |
| Phenol | | 3,300 U | 3,300 U | 3,300 U |
| Pyrene | | 3,300 U | 3,300 U | 3,300 U |
| Pyridine | | 3,300 U | 3,300 U | 3,300 U |
| 1,2,4-Trichlorobenzene | | 3,300 U | 3,300 U | 3,300 U |
| 2,4,5-Trichlorophenol | | 8,000 U | 8,000 U | 8,000 U |
| 2,4,6-Trichlorophenol | | 3,300 U | 3,300 U | 3,300 U |
| | Location No.: | 017-025BH 5 - 5.5 | 017-028BH 1.5 - 2 | 017-028BH 5 - 5.5 |
| | Sample Date: | 5/17/95 | 5/17/95 | 5/17/95 |
| | Lab Sample No.: | 9505673-08 | 9505673-12 | 9505673-13 |
| Metals | Matrix: | Soil | Soil | Soil |
| Mercury, Total | | 0.1 U | 0.1 U | 0.1 U |

Table J.6
Analytical Results of SVOCs and Metals in Soil Samples at Site No. 17
Minnesota Air National Guard Base
Duluth, Minnesota

| | Location No.: Sample Date: Lab Sample No.: Matrix: | 017-029BH 1.5 - 2 5/19/95 9505766-04 Soil | 017-029BH Duplicate 5/19/95 9505766-11 Soil | 017-030BH 1.5 - 2 5/19/95 9505766-05 Soil |
|-----------------------------|---|--|--|--|
| SVOCs | | | | |
| Acenaphthene | | 330 U | 330 U | 330 U |
| Acenaphthylene | | 330 U | 330 U | 330 U |
| Aniline | | 330 U | 330 U | 330 U |
| Anthracene | | 330 U | 330 U | 330 U |
| Benzo(a)anthracene | | 330 U | 330 U | 640 |
| Benzo(b)fluoranthene | | 330 U | 330 U | 880 |
| Benzo(k)fluoranthene | | 330 U | 330 U | 380 |
| Benzo(a)pyrene | | 330 U | 330 U | 640 |
| Benzoic acid | | 1,600 U | 1,600 U | 1,600 U |
| Benzo(g,h,i)perylene | | 330 U | 330 U | 440 |
| Benzyl alcohol | | 330 U | 330 U | 330 U |
| 4-Bromophenylphenyl ether | | 330 U | 330 U | 330 U |
| Butylbenzylphthalate | | 330 U | 330 U | 330 U |
| Di-n-butyl phthalate | | 330 U | 330 U | 330 U |
| Carbazole | | 330 U | 330 U | 330 U |
| 4-Chloroaniline | | 330 U | 330 U | 330 U |
| Bis(2-chloroethoxy)methane | | 330 U | 330 U | 330 U |
| Bis(2-chloroethyl)ether | | 330 U | 330 U | 330 U |
| Bis(2-chloroisopropyl)ether | | 330 U | 330 U | 330 U |
| 4-Chloro-3-methylphenol | | 330 U | 330 U | 330 U |
| 2-Chloronaphthalene | | 330 U | 330 U | 330 U |
| 2-Chlorophenol | | 330 U | 330 U | 330 U |
| 4-Chlorophenylphenyl ether | | 330 U | 330 U | 330 U |
| Chrysene | | 330 U | 330 U | 720 |
| Dibenz(a,h)anthracene | | 330 U | 330 U | 330 U |
| Dibenzofuran | | 330 U | 330 U | 330 U |
| 1,2-Dichlorobenzene | | 330 U | 330 U | 330 U |
| 1,3-Dichlorobenzene | | 330 U | 330 U | 330 U |
| 1,4-Dichlorobenzene | | 330 U | 330 U | 330 U |
| 3,3'-Dichlorobenzidine | | 330 U | 330 U | 330 U |
| 2,4-Dichlorophenol | | 330 U | 330 U | 330 U |
| Diethylphthalate | | 330 U | 330 U | 330 U |
| 2,4-Dimethylphenol | | 330 U | 330 U | 330 U |
| Dimethyl Phthalate | | 330 U | 330 U | 330 U |
| 4,6-Dinitro-2-methylphenol | | 800 U | 800 U | 800 U |
| 2,4-Dinitrophenol | | 800 U | 800 U | 800 U |

Table J.6
Analytical Results of SVOCs and Metals in Soil Samples at Site No. 17
Minnesota Air National Guard Base
Duluth, Minnesota

| | Location No.: | 017-029BH 1.5 - 2 | 017-029BH Duplicate | 017-030BH 1.5 - 2 |
|----------------------------|-----------------|-------------------|---------------------|-------------------|
| | Sample Date: | 5/19/95 | 5/19/95 | 5/19/95 |
| | Lab Sample No.: | 9505766-04 | 9505766-11 | 9505766-05 |
| SVOCs | Matrix: | Soil | Soil | Soil |
| 2,4-Dinitrotoluene | | 330 U | 330 U | 330 U |
| 2,6-Dinitrotoluene | | 330 U | 330 U | 330 U |
| 1,2-Diphenylhydrazine | | 330 U | 330 U | 330 U |
| Bis(2-ethylhexyl)phthalate | | 330 U | 330 U | 330 U |
| Fluoranthene | | 330 U | 330 U | 1,100 |
| Fluorene | | 330 U | 330 U | 330 U |
| Hexachlorobenzene | | 330 U | 330 U | 330 U |
| Hexachlorobutadiene | | 330 U | 330 U | 330 U |
| Hexachloroethane | | 330 U | 330 U | 330 U |
| Hexachlorocyclopentadiene | | 330 U | 330 U | 330 U |
| Indeno(1,2,3-cd)pyrene | | 330 U | 330 U | 390 |
| Isophorone | | 330 U | 330 U | 330 U |
| 2-Methylnaphthalene | | 330 U | 330 U | 330 U |
| 2-Methylphenol | | 330 U | 330 U | 330 U |
| 4-Methylphenol | | 330 U | 330 U | 330 U |
| Naphthalene | | 330 U | 330 U | 330 U |
| 2-Nitroaniline | | 800 U | 800 U | 800 U |
| 3-Nitroaniline | | 800 U | 800 U | 800 U |
| 4-Nitroaniline | | 800 U | 800 U | 800 U |
| Nitrobenzene | | 330 U | 330 U | 330 U |
| 2-Nitrophenol | | 330 U | 330 U | 330 U |
| 4-Nitrophenol | | 800 U | 800 U | 800 U |
| N-Nitrosodiphenylamine (1) | | 330 U | 330 U | 330 U |
| N-Nitroso-di-n-propylamine | | 330 U | 330 U | 330 U |
| Di-n-octyl phthalate | | 330 U | 330 U | 330 U |
| Pentachlorophenol | | 800 U | 800 U | 800 U |
| Phenanthrene | | 330 U | 330 U | 1,000 |
| Phenol | | 330 U | 330 U | 330 U |
| Pyrene | | 330 U | 330 U | 1,800 |
| Pyridine | | 330 U | 330 U | 330 U |
| 1,2,4-Trichlorobenzene | | 330 U | 330 U | 330 U |
| 2,4,5-Trichlorophenol | | 800 U | 800 U | 800 U |
| 2,4,6-Trichlorophenol | | 330 U | 330 U | 330 U |
| | Location No.: | 017-029BH 1.5 - 2 | 017-029BH Duplicate | 017-030BH 1.5 - 2 |
| | Sample Date: | 5/19/95 | 5/19/95 | 5/19/95 |
| | Lab Sample No.: | 9505766-04 | 9505766-11 | 9505766-05 |
| Metals | Matrix: | Soil | Soil | Soil |
| Mercury, Total | | 0.4 U | 0.4 U | 0.4 U |

Table J.6
Analytical Results of SVOCs and Metals in Soil Samples at Site No. 17
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs | Location No.: Sample Date: Lab Sample No.: Matrix: | 017-031BH 1.5 - 2 5/19/95 9505766-07 Soil | 017-031BH 5 - 5.5 5/19/95 9505766-06 Soil | 017-032BH 1.5 - 2 5/19/95 9505766-08 Soil |
|-----------------------------|---|--|--|--|
| Acenaphthene | | 660 U | 990 U | 660 U |
| Acenaphthylene | | 660 U | 990 U | 660 U |
| Aniline | | 660 U | 990 U | 660 U |
| Anthracene | | 660 U | 990 U | 660 U |
| Benzo(a)anthracene | | 660 U | 990 U | 660 U |
| Benzo(b)fluoranthene | | 660 U | 990 U | 660 U |
| Benzo(k)fluoranthene | | 660 U | 990 U | 660 U |
| Benzo(a)pyrene | | 660 U | 990 U | 660 U |
| Benzoic acid | | 3,200 U | 4,800 U | 3,200 U |
| Benzo(g,h,i)perylene | | 660 U | 990 U | 660 U |
| Benzyl alcohol | | 660 U | 990 U | 660 U |
| 4-Bromophenylphenyl ether | | 660 U | 990 U | 660 U |
| Butylbenzylphthalate | | 660 U | 990 U | 660 U |
| Di-n-butyl phthalate | | 660 U | 990 U | 660 U |
| Carbazole | | 660 U | 990 U | 660 U |
| 4-Chloroaniline | | 660 U | 990 U | 660 U |
| Bis(2-chloroethoxy)methane | | 660 U | 990 U | 660 U |
| Bis(2-chloroethyl)ether | | 660 U | 990 U | 660 U |
| Bis(2-chloroisopropyl)ether | | 660 U | 990 U | 660 U |
| 4-Chloro-3-methylphenol | | 660 U | 990 U | 660 U |
| 2-Chloronaphthalene | | 660 U | 990 U | 660 U |
| 2-Chlorophenol | | 660 U | 990 U | 660 U |
| 4-Chlorophenylphenyl ether | | 660 U | 990 U | 660 U |
| Chrysene | | 660 U | 990 U | 660 U |
| Dibenz(a,h)anthracene | | 660 U | 990 U | 660 U |
| Dibenzofuran | | 660 U | 990 U | 660 U |
| 1,2-Dichlorobenzene | | 660 U | 990 U | 660 U |
| 1,3-Dichlorobenzene | | 660 U | 990 U | 660 U |
| 1,4-Dichlorobenzene | | 660 U | 990 U | 660 U |
| 3,3'-Dichlorobenzidine | | 660 U | 990 U | 660 U |
| 2,4-Dichlorophenol | | 660 U | 990 U | 660 U |
| Diethylphthalate | | 660 U | 990 U | 660 U |
| 2,4-Dimethylphenol | | 660 U | 990 U | 660 U |
| Dimethyl Phthalate | | 660 U | 990 U | 660 U |
| 4,6-Dinitro-2-methylphenol | | 1,600 U | 2,400 U | 1,600 U |
| 2,4-Dinitrophenol | | 1,600 U | 2,400 U | 1,600 U |

Table J.6
Analytical Results of SVOCs and Metals in Soil Samples at Site No. 17
Minnesota Air National Guard Base
Duluth, Minnesota

| | Location No.: | 017-031BH 1.5 - 2 | 017-031BH 5 - 5.5 | 017-032BH 1.5 - 2 |
|----------------------------|-----------------|-------------------|-------------------|-------------------|
| | Sample Date: | 5/19/95 | 5/19/95 | 5/19/95 |
| | Lab Sample No.: | 9505766-07 | 9505766-06 | 9505766-08 |
| SVOCs | Matrix: | Soil | Soil | Soil |
| 2,4-Dinitrotoluene | | 660 U | 990 U | 660 U |
| 2,6-Dinitrotoluene | | 660 U | 990 U | 660 U |
| 1,2-Diphenylhydrazine | | 660 U | 990 U | 660 U |
| Bis(2-ethylhexyl)phthalate | | 660 U | 990 U | 660 U |
| Fluoranthene | | 660 U | 990 U | 800 |
| Fluorene | | 660 U | 990 U | 660 U |
| Hexachlorobenzene | | 660 U | 990 U | 660 U |
| Hexachlorobutadiene | | 660 U | 990 U | 660 U |
| Hexachloroethane | | 660 U | 990 U | 660 U |
| Hexachlorocyclopentadiene | | 660 U | 990 U | 660 U |
| Indeno(1,2,3-cd)pyrene | | 660 U | 990 U | 660 U |
| Isophorone | | 660 U | 990 U | 660 U |
| 2-Methylnaphthalene | | 660 U | 990 U | 660 U |
| 2-Methylphenol | | 660 U | 990 U | 660 U |
| 4-Methylphenol | | 660 U | 990 U | 660 U |
| Naphthalene | | 660 U | 990 U | 660 U |
| 2-Nitroaniline | | 1,600 U | 2,400 U | 1,600 U |
| 3-Nitroaniline | | 1,600 U | 2,400 U | 1,600 U |
| 4-Nitroaniline | | 1,600 U | 2,400 U | 1,600 U |
| Nitrobenzene | | 660 U | 990 U | 660 U |
| 2-Nitrophenol | | 660 U | 990 U | 660 U |
| 4-Nitrophenol | | 1,600 U | 2,400 U | 1,600 U |
| N-Nitrosodiphenylamine (1) | | 660 U | 990 U | 660 U |
| N-Nitroso-di-n-propylamine | | 660 U | 990 U | 660 U |
| Di-n-octyl phthalate | | 660 U | 990 U | 660 U |
| Pentachlorophenol | | 1,600 U | 2,400 U | 1,600 U |
| Phenanthrene | | 660 U | 990 U | 1,400 |
| Phenol | | 660 U | 990 U | 660 U |
| Pyrene | | 790 | 990 U | 1,600 |
| Pyridine | | 660 U | 990 U | 660 U |
| 1,2,4-Trichlorobenzene | | 660 U | 990 U | 660 U |
| 2,4,5-Trichlorophenol | | 1,600 U | 2,400 U | 1,600 U |
| 2,4,6-Trichlorophenol | | 660 U | 990 U | 660 U |
| | Location No.: | 017-031BH 1.5 - 2 | 017-031BH 5 - 5.5 | 017-032BH 1.5 - 2 |
| | Sample Date: | 5/19/95 | 5/19/95 | 5/19/95 |
| | Lab Sample No.: | 9505766-07 | 9505766-06 | 9505766-08 |
| Metals | Matrix: | Soil | Soil | Soil |
| Mercury, Total | | 0.4 U | 0.4 U | 0.4 U |

Table J.7
Analytical Results of TPH in Soil Samples at Site No. 17
Minnesota Air National Guard Base
Duluth, Minnesota

| | | | |
|-------------------------|-----------------|-------------------|-------------------|
| | Location No.: | 017-022BH 2 - 2.5 | 017-023BH 2 - 2.5 |
| | Sample Date: | 5/17/95 | 5/17/95 |
| TPH (mg/kg) | Lab Sample No.: | 2575-95LS | 2576-95LS |
| | Matrix: | Soil | Soil |
| Gasoline Range Organics | | 5.0 U | 5.0 U |
| Diesel Range Organics | | 4.0 U | 4.0 U |
| | Location No.: | 017-023BH 5.5 - 6 | 017-024BH 1.5 - 2 |
| | Sample Date: | 5/17/95 | 5/17/95 |
| TPH (mg/kg) | Lab Sample No.: | 2577-95LS | 2578-95LS |
| | Matrix: | Soil | Soil |
| Gasoline Range Organics | | 5.0 U | 5.0 U |
| Diesel Range Organics | | 4.0 U | 13.4 |
| | Location No.: | 017-024BH 5 - 5.5 | 017-025BH 1.5 - 2 |
| | Sample Date: | 5/17/95 | 5/17/95 |
| TPH (mg/kg) | Lab Sample No.: | 2579-95LS | 2580-95LS |
| | Matrix: | Soil | Soil |
| Gasoline Range Organics | | 5.0 U | 5.0 U |
| Diesel Range Organics | | 70.6 | 144 |
| | Location No.: | 017-025BH 5.5 - 6 | 017-031BH 2 - 2.5 |
| | Sample Date: | 5/17/95 | 5/19/95 |
| TPH (mg/kg) | Lab Sample No.: | 2581-95LS | 2621-95LS |
| | Matrix: | Soil | Soil |
| Gasoline Range Organics | | 5.0 U | 5.0 U |
| Diesel Range Organics | | 9.92 | 19.3 |
| | Location No.: | 017-031BH 2 - 2.5 | 017-031BH 5.5 - 6 |
| | Sample Date: | 5/19/95 | 5/19/95 |
| TPH (mg/kg) | Lab Sample No.: | 2622-95LS | 2623-95LS |
| | Matrix: | Soil | Soil |
| Gasoline Range Organics | | 5.0 U | 5.0 U |
| Diesel Range Organics | | 4.02 | 41.2 |
| | Location No.: | 017-032BH 2 - 2.5 | 017-021BH 2 - 2.5 |
| | Sample Date: | 5/19/95 | 5/19/95 |
| TPH (mg/kg) | Lab Sample No.: | 2624-95LS | 2625-95LS |
| | Matrix: | Soil | Soil |
| Gasoline Range Organics | | 5.0 U | 5.0 U |
| Diesel Range Organics | | 4.0 U | 4.0 U |
| | Location No.: | 017-021BH 5.5 - 6 | 017-030BH 2 - 2.5 |
| | Sample Date: | 5/19/95 | 5/19/95 |
| TPH (mg/kg) | Lab Sample No.: | 2626-95LS | 2627-95LS |
| | Matrix: | Soil | Soil |
| Gasoline Range Organics | | 5.0 U | 5.0 U |
| Diesel Range Organics | | 4.0 U | 189 |
| | Location No.: | 017-028BH 2 - 2.5 | 017-028BH 5.5 - 6 |
| | Sample Date: | 5/17/95 | 5/17/95 |
| TPH (mg/kg) | Lab Sample No.: | 2582-95LS | 2583-95LS |
| | Matrix: | Soil | Soil |
| Gasoline Range Organics | | 5.0 U | 5.0 U |
| Diesel Range Organics | | 4.0 U | 4.0 U |

Table J.7
Analytical Results of TPH in Soil Samples at Site No. 17
Minnesota Air National Guard Base
Duluth, Minnesota

| | | | |
|-------------------------|-----------------|-------------------|-------------------|
| | Location No.: | 017-029BH 2 - 2.5 | 017-029BH 2 - 2.5 |
| | Sample Date: | 5/19/95 | 5/19/95 |
| | Lab Sample No.: | 2628-95LS | 2629-95LS |
| TPH (mg/kg) | Matrix: | Soil | Soil |
| Gasoline Range Organics | | 5.0 U | 5.0 U |
| Diesel Range Organics | | 4.2 | 5.6 |

Table J.8
Analytical Results of TPH in Soil Samples at Site No. 21
Minnesota Air National Guard Base
Duluth, Minnesota

| | | | |
|-------------------------|------------------------|--------------------------|--------------------------|
| TPH (mg/kg) | Location No.: | 021-026BH 2 - 2.5 | 021-026BH 9 - 9.5 |
| | Sample Date: | 5/16/95 | 5/16/95 |
| | Lab Sample No.: | 2537-95LS | 2538-95LS |
| | Matrix: | Soil | Soil |
| Gasoline Range Organics | | 5.0 U | 5.0 U |
| Diesel Range Organics | | 88.00 | 8.70 |
| TPH (mg/kg) | Location No.: | 021-027BH 2 - 2.5 | 021-027BH 8 - 9 |
| | Sample Date: | 5/16/95 | 5/16/95 |
| | Lab Sample No.: | 2539-95LS | 2540-95LS |
| | Matrix: | Soil | Soil |
| Gasoline Range Organics | | 5.0 U | 5.0 U |
| Diesel Range Organics | | 27.70 | 29.10 |
| TPH (mg/kg) | Location No.: | 021-027BH 9 - 10 | 021-028BH 2 - 2.5 |
| | Sample Date: | 5/16/95 | 5/16/95 |
| | Lab Sample No.: | 2541-95LS | 2542-95LS |
| | Matrix: | Soil | Soil |
| Gasoline Range Organics | | 5.0 U | 5.0 U |
| Diesel Range Organics | | | 4.0 U |
| TPH (mg/kg) | Location No.: | 021-028BH 1.5 - 2 | 021-028BH 5.5 - 6 |
| | Sample Date: | 5/16/95 | 5/16/95 |
| | Lab Sample No.: | 2543-95LS | 2544-95LS |
| | Matrix: | Soil | Soil |
| Gasoline Range Organics | | 5.0 U | 5.0 U |
| Diesel Range Organics | | 0.00 | 6.61 |

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APPENDIX K

**ANALYTICAL RESULTS OF THE QUALITY ASSURANCE/
QUALITY CONTROL SAMPLES**

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SECTION K.1

INTRODUCTION

Quality Assurance/Quality Control (QA/QC) samples were gathered during soil and water sampling for laboratory analysis by Southern Petroleum Laboratory (SPL) of Houston, Texas. The analytical results are presented in Tables K.1 through K.12.

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Table K.1
Analytical Results of Trip Blank Samples for Sites 17, 18, and 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | 021-TB01 7/7/94 9407443-13 | 021-TB 02 7/13/94 9407473-02 | 021-TB 03 7/15/94 9407567-14 | 021-TB 03 7/15/94 9407612-06 | 018-TB 01 7/25/94 9407971-05 | Sites 21 10/4/94 9410146-08 | Sites 18 & 21 10/5/94 9410180-10 | Sites 17, 18, & 21 10/6/94 9410269-10 |
|--|----------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|-----------------------------------|--|---|
| VOCs (ug/L) | Water | Water | Water | Water | Water | Water | Water | Water |
| Acetone | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| Benzene | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Bromodichloromethane | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Bromoform | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Bromomethane | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| 2-Butanone | 20U | 20U | 20U | 20U | 20U | 20U | 20U | 20U |
| Carbon Disulfide | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Carbon Tetrachloride | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Chlorobenzene | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Chloroethane | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| 2-Chloroethylvinylether | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| Chloroform | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Chloromethane | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| Dibromochloromethane | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1-Dichloroethane | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1-Dichloroethene | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,2-Dichloroethane | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| total -1,2-Dichloroethene | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,2-Dichloropropane | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| cis-1,3-Dichloropropene | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| trans-1,3-Dichloropropene | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Ethylbenzene | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 2-Hexanone | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| Methylene Chloride | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 4-Methyl-2-Pentanone | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| Styrene | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,2,2-Tetrachloroethane | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Tetrachloroethene | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Toluene | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,1-Trichloroethane | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| 1,1,2-Trichloroethane | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Trichloroethene | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Trichlorofluoromethane | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |
| Vinyl Acetate | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| Vinyl Chloride | 10U | 10U | 10U | 10U | 10U | 10U | 10U | 10U |
| Xylenes (total) | 5U | 5U | 5U | 5U | 5U | 5U | 5U | 5U |

U - Indicates compound analyzed for but not detected.
VOCs - Volatile organic compounds

TB - Trip Blank
ug/L - micrograms per liter

Table K.2
Analytical Results of Field Blank Samples for Sites 17, 18, and 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | | DANGB-FB01 10/6/94 9410269-08 | | DANGB-FB02 10/6/94 9410269-09 | |
|--|--------|-------------------------------------|-------|-------------------------------------|-------|
| VOCs (ug/L) | Matrix | Water | Water | Water | Water |
| Acetone | | 10U | | 10U | |
| Benzene | | 5U | | 5U | |
| Bromodichloromethane | | 5U | | 5U | |
| Bromoform | | 5U | | 5U | |
| Bromomethane | | 10U | | 10U | |
| 2-Butanone | | 22 | | 20U | |
| Carbon Disulfide | | 5U | | 5U | |
| Carbon Tetrachloride | | 5U | | 5U | |
| Chlorobenzene | | 5U | | 5U | |
| Chloroethane | | 10U | | 10U | |
| 2-Chloroethylvinylether | | 10U | | 10U | |
| Chloroform | | 5U | | 12 | |
| Chloromethane | | 10U | | 10U | |
| Dibromochloromethane | | 5U | | 5U | |
| 1,1-Dichloroethane | | 5U | | 5U | |
| 1,1-Dichloroethene | | 5U | | 5U | |
| 1,2-Dichloroethane | | 5U | | 5U | |
| total -1,2-Dichloroethene | | 5U | | 5U | |
| 1,2-Dichloropropane | | 5U | | 5U | |
| cis-1,3-Dichloropropene | | 5U | | 5U | |
| trans-1,3-Dichloropropene | | 5U | | 5U | |
| Ethylbenzene | | 5U | | 5U | |
| 2-Hexanone | | 10U | | 10U | |
| Methylene Chloride | | 5U | | 5U | |
| 4-Methyl-2-Pentanone | | 10U | | 10U | |
| Styrene | | 5U | | 5U | |
| 1,1,2,2-Tetrachloroethane | | 5U | | 5U | |
| Tetrachloroethene | | 5U | | 5U | |
| Toluene | | 5U | | 5U | |
| 1,1,1-Trichloroethane | | 5U | | 5U | |
| 1,1,2-Trichloroethane | | 5U | | 5U | |
| Trichloroethene | | 5U | | 5U | |
| Trichlorofluoromethane | | 5U | | 5U | |
| Vinyl Acetate | | 10U | | 10U | |
| Vinyl Chloride | | 10U | | 10U | |
| Xylenes (total) | | 5U | | 5U | |

U - Indicates compound analyzed for but not detected.
VOCs - Volatile organic compounds
FB - Field Blank

DANGB - Duluth Air National Guard Base
ug/L - micrograms per liter

Table K.2
Analytical Results of Field Blank Samples for Sites 17, 18, and 21
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/L) | Location No.: DANGB-FB01 | | DANGB-FB02 | |
|-----------------------------|--------------------------|------------|------------|------------|
| | Sample Date: | 10/6/94 | 10/6/94 | 10/6/94 |
| | Lab Sample No.: | 9410269-08 | 9410269-09 | 9410269-09 |
| | Matrix | Water | Water | Water |
| Acenaphthene | | SU | SU | SU |
| Acenaphthylene | | SU | SU | SU |
| Aniline | | SU | SU | SU |
| Anthracene | | SU | SU | SU |
| Benzo (a) Anthracene | | SU | SU | SU |
| Benzo (b) Fluoranthene | | SU | SU | SU |
| Benzo (k) Fluoranthene | | SU | SU | SU |
| Benzo (a) Pyrene | | SU | SU | SU |
| Benzoic Acid | | 25U | 25U | 25U |
| Benzo(g,h,i)Perylene | | SU | SU | SU |
| Benzyl alcohol | | SU | SU | SU |
| 4-Bromophenylphenyl ether | | SU | SU | SU |
| Butylbenzylphthalate | | SU | SU | SU |
| di-n-Butyl phthalate | | SU | SU | SU |
| Carbazole | | SU | SU | SU |
| 4-Chloroaniline | | SU | SU | SU |
| bis(2-Chloroethoxy)Methane | | SU | SU | SU |
| bis(2-Chloroethyl)Ether | | SU | SU | SU |
| bis(2-Chloroisopropyl)Ether | | SU | SU | SU |
| 4-Chloro-3-Methylphenol | | SU | SU | SU |
| 2-Chloronaphthalene | | SU | SU | SU |
| 2-Chlorophenol | | SU | SU | SU |
| 4-Chlorophenylphenyl ether | | SU | SU | SU |
| Chrysene | | SU | SU | SU |
| Dibenz(a,b)Anthracene | | SU | SU | SU |
| Dibenzofuran | | SU | SU | SU |
| 1,2-Dichlorobenzene | | SU | SU | SU |
| 1,3-Dichlorobenzene | | SU | SU | SU |
| 1,4-Dichlorobenzene | | SU | SU | SU |
| 3,3'-Dichlorobenzidine | | SU | SU | SU |
| 2,4-Dichlorophenol | | SU | SU | SU |
| Diethylphthalate | | SU | SU | SU |
| 2,4-Dimethylphenol | | SU | SU | SU |
| Dimethyl Phthalate | | SU | SU | SU |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
TPH - Total petroleum hydrocarbons
FB - Field Blank

DANGB - Duluth Air National Guard Base
ug/L - micrograms per liter
mg/L - milligrams per liter

Table K.2
Analytical Results of Field Blank Samples for Sites 17, 18, and 21
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/L) | Location No.: DANGB-FB01 | | DANGB-FB02 | |
|------------------------------|--------------------------|------------|------------|--|
| | Sample Date: | 10/6/94 | 10/6/94 | |
| | Lab Sample No.: | 9410269-08 | 9410269-09 | |
| | Matrix | Water | Water | |
| 4,6-Dinitro-2-Methylphenol | | 25U | 25U | |
| 2,4-Dinitrophenol | | 25U | 25U | |
| 2,4-Dinitrotoluene | | 5U | 5U | |
| 2,6-Dinitrotoluene | | 5U | 5U | |
| 1,2-Diphenylhydrazine | | 5U | 5U | |
| bis (2-Ethylhexyl) Phthalate | | 5U | 5U | |
| Fluoranthene | | 5U | 5U | |
| Fluorene | | 5U | 5U | |
| Hexachlorobenzene | | 5U | 5U | |
| Hexachlorobutadiene | | 5U | 5U | |
| Hexachloroethane | | 5U | 5U | |
| Hexachlorocyclopentadiene | | 5U | 5U | |
| Indeno (1,2,3-cd) Pyrene | | 5U | 5U | |
| Isophorone | | 5U | 5U | |
| 2-Methylnaphthalene | | 5U | 5U | |
| 2-Methylphenol | | 5U | 5U | |
| 4-Methylphenol | | 5U | 5U | |
| Naphthalene | | 5U | 5U | |
| 2-Nitroaniline | | 25U | 25U | |
| 3-Nitroaniline | | 25U | 25U | |
| 4-Nitroaniline | | 25U | 25U | |
| Nitrobenzene | | 5U | 5U | |
| 2-Nitrophenol | | 25U | 25U | |
| 4-Nitrophenol | | 25U | 25U | |
| N-Nitrosodiphenylamine (1) | | 5U | 5U | |
| N-Nitroso-Di-n-Propylamine | | 5U | 5U | |
| Di-n-Octyl Phthalate | | 5U | 5U | |
| Pentachlorophenol | | 25U | 25U | |
| Phenanthrene | | 5U | 5U | |
| Phenol | | 5U | 5U | |
| Pyrene | | 5U | 5U | |
| Pyridine | | 5U | 5U | |
| 1,2,4-Trichlorobenzene | | 5U | 5U | |
| 2,4,5-Trichlorophenol | | 10U | 10U | |
| 2,4,6-Trichlorophenol | | 5U | 5U | |
| TPH (mg/L) | | 0.5U | 0.5U | |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
TPH - Total petroleum hydrocarbons
FB - Field Blank

DANGB - Duluth Air National Guard Base
ug/L - micrograms per liter
mg/L - milligrams per liter

Table K.2
Analytical Results of Field Blank Samples for Sites 17, 18, and 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Pesticides/PCBs (ug/L) | Location No.: | | DANGB-FB01 | | DANGB-FB02 | |
|------------------------|---------------|--------|------------|-------|------------|-------|
| | Sample Date: | Matrix | 10/6/94 | Water | 10/6/94 | Water |
| Lab Sample No.: | 9410269-08 | | 9410269-09 | | 9410269-09 | |
| a-BHC | 0.02U | | | 0.02U | | 0.02U |
| b-BHC | 0.05U | | | 0.05U | | 0.05U |
| d-BHC | 0.05U | | | 0.05U | | 0.05U |
| g-BHC | 0.03U | | | 0.03U | | 0.03U |
| Heptachlor | 0.03U | | | 0.03U | | 0.03U |
| Aldrin | 0.02U | | | 0.02U | | 0.02U |
| Heptachlor Epoxide | 0.05U | | | 0.05U | | 0.05U |
| Endosulfan I | 0.05U | | | 0.05U | | 0.05U |
| Dieldrin | 0.01U | | | 0.01U | | 0.01U |
| Endrin | 0.04U | | | 0.04U | | 0.04U |
| Endosulfan II | 0.03U | | | 0.03U | | 0.03U |
| 4,4'-DDT | 0.07U | | | 0.07U | | 0.07U |
| Endrin Aldehyde | 0.10U | | | 0.10U | | 0.10U |
| Methoxychlor | 0.05U | | | 0.05U | | 0.05U |
| a-Chlordane | 0.05U | | | 0.05U | | 0.05U |
| g-Chlordane | 0.01U | | | 0.01U | | 0.01U |
| 4,4'-DDE | 0.02U | | | 0.02U | | 0.02U |
| 4,4'-DDD | 0.10U | | | 0.10U | | 0.10U |
| Endosulfan Sulfate | 0.10U | | | 0.10U | | 0.10U |
| Endrin Ketone | 0.10U | | | 0.10U | | 0.10U |
| Toxaphene | 1.0U | | | 1.0U | | 1.0U |
| Chlordane (technical) | 0.05U | | | 0.05U | | 0.05U |
| PCB-1016 | 0.5U | | | 0.5U | | 0.5U |
| PCB-1221 | 0.5U | | | 0.5U | | 0.5U |
| PCB-1232 | 0.5U | | | 0.5U | | 0.5U |
| PCB-1242 | 0.5U | | | 0.5U | | 0.5U |
| PCB-1248 | 0.5U | | | 0.5U | | 0.5U |
| PCB-1254 | 0.5U | | | 0.5U | | 0.5U |
| PCB-1260 | 0.5U | | | 0.5U | | 0.5U |

U - Indicates compound analyzed for but not detected.
PCBs - Polychlorinated biphenyls
FB - Field Blank

DANGB - Duluth Air National Guard Base
ug/L - micrograms per liter

Table K.3
Analytical Results of Field Blank Sample for Site 17
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/L) | Location No.: | 017-FB01 |
|-----------------------------|-----------------|------------|
| | Sample Date: | 7/25/94 |
| | Lab Sample No.: | 9407971-06 |
| | Matrix | Water |
| Acenaphthene | | SU |
| Acenaphthylene | | SU |
| Aniline | | SU |
| Anthracene | | SU |
| Benzo (a) Anthracene | | SU |
| Benzo (b) Fluoranthene | | SU |
| Benzo (k) Fluoranthene | | SU |
| Benzo (a) Pyrene | | SU |
| Benzoic Acid | | 25U |
| Benzo(g,h,i)Perylene | | SU |
| Benzyol alcohol | | SU |
| 4-Bromophenylphenyl ether | | SU |
| Butylbenzylphthalate | | SU |
| di-n-Butyl phthalate | | SU |
| Carbazole | | SU |
| 4-Chloroaniline | | SU |
| bis(2-Chloroethoxy)Methane | | SU |
| bis(2-Chloroethyl)Ether | | SU |
| bis(2-Chloroisopropyl)Ether | | SU |
| 4-Chloro-3-Methylphenol | | SU |
| 2-Chloronaphthalene | | SU |
| 2-Chlorophenol | | SU |
| 4-Chlorophenylphenyl ether | | SU |
| Chrysene | | SU |
| Dibenz(a,h)Anthracene | | SU |
| Dibenzofuran | | SU |
| 1,2-Dichlorobenzene | | SU |
| 1,3-Dichlorobenzene | | SU |
| 1,4-Dichlorobenzene | | SU |
| 3,3'-Dichlorobenzidine | | SU |
| 2,4-Dichlorophenol | | SU |
| Diethylphthalate | | SU |
| 2,4-Dimethylphenol | | SU |
| Dimethyl Phthalate | | SU |
| 4,6-Dinitro-2-Methylphenol | | 25U |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
TPH - Total petroleum hydrocarbons

FB - Field Blank
ug/L - micrograms per liter
mg/L - milligrams per liter

Table K.3
Analytical Results of Field Blank Sample for Site 17
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/L) | | Location No.: 017-FB01 Sample Date: 7/25/94 Lab Sample No.: 9407971-06 |
|------------------------------|--|--|
| | | Matrix Water |
| 2,4-Dinitrophenol | | 25U |
| 2,4-Dinitrotoluene | | 5U |
| 2,6-Dinitrotoluene | | 5U |
| 1,2-Diphenylhydrazine | | 5U |
| bis (2-Ethylhexyl) Phthalate | | 5U |
| Fluoranthene | | 5U |
| Fluorene | | 5U |
| Hexachlorobenzene | | 5U |
| Hexachlorobutadiene | | 5U |
| Hexachloroethane | | 5U |
| Hexachlorocyclopentadiene | | 5U |
| Indeno (1,2,3-cd) Pyrene | | 5U |
| Isophorone | | 5U |
| 2-Methylnaphthalene | | 5U |
| 2-Methylphenol | | 5U |
| 4-Methylphenol | | 10U |
| Naphthalene | | 5U |
| 2-Nitroaniline | | 25U |
| 3-Nitroaniline | | 25U |
| 4-Nitroaniline | | 25U |
| Nitrobenzene | | 5U |
| 2-Nitrophenol | | 25U |
| 4-Nitrophenol | | 25U |
| N-Nitrosodiphenylamine (1) | | 5U |
| N-Nitroso-Di-n-Propylamine | | 5U |
| Di-n-Octyl Phthalate | | 5U |
| Pentachlorophenol | | 25U |
| Phenanthrene | | 5U |
| Phenol | | 5U |
| Pyrene | | 5U |
| Pyridine | | 5U |
| 1,2,4-Trichlorobenzene | | 5U |
| 2,4,5-Trichlorophenol | | 10U |
| 2,4,6-Trichlorophenol | | 5U |
| TPH (mg/L) | | 0.5U |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
TPH - Total petroleum hydrocarbons

FB - Field Blank
ug/L - micrograms per liter
mg/L - milligrams per liter

Table K.4
Analytical Results of Field Blank Samples for Site 18
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: 018-FB01 | | Sample Date: 7/25/94 |
|----------------------------|--------|----------------------|
| Lab Sample No.: 9407971-03 | | |
| VOCs (ug/L) | Matrix | Water |
| Acetone | | 10U |
| Benzene | | 5U |
| Bromodichloromethane | | 5U |
| Bromoform | | 5U |
| Bromomethane | | 10U |
| 2-Butanone | | 20U |
| Carbon Disulfide | | 5U |
| Carbon Tetrachloride | | 5U |
| Chlorobenzene | | 5U |
| Chloroethane | | 10U |
| 2-Chloroethylvinylether | | 10U |
| Chloroform | | 5U |
| Chloromethane | | 10U |
| Dibromochloromethane | | 5U |
| 1,1-Dichloroethane | | 5U |
| 1,1,1-Dichloroethene | | 5U |
| 1,2-Dichloroethane | | 5U |
| total -1,2-Dichloroethene | | 5U |
| 1,2-Dichloropropane | | 5U |
| cis-1,3-Dichloropropene | | 5U |
| trans-1,3-Dichloropropene | | 5U |
| Ethylbenzene | | 5U |
| 2-Hexanone | | 10U |
| Methylene Chloride | | 5U |
| 4-Methyl-2-Pentanone | | 10U |
| Styrene | | 5U |
| 1,1,2,2-Tetrachloroethane | | 5U |
| Tetrachloroethene | | 5U |
| Toluene | | 5U |
| 1,1,1-Trichloroethane | | 5U |
| 1,1,2-Trichloroethane | | 5U |
| Trichloroethene | | 5U |
| Trichlorofluoromethane | | 5U |
| Vinyl Acetate | | 10U |
| Vinyl Chloride | | 10U |
| Xylenes (total) | | 5U |

U - Indicates compound analyzed for but not detected.
VOCs - Volatile organic compounds

FB - Field Blank
ug/L - micrograms per liter

Table K.5

Analytical Results of Field Blank Sample for Site 21
 Minnesota Air National Guard Base
 Duluth, Minnesota

| Metals (mg/L) | | Location No.: | 021-FB01 |
|---------------|--|----------------|------------|
| | | Sample Date: | 7/22/94 |
| | | Lab Sample No: | 4907999-01 |
| | | Matrix | Water |
| Aluminum | | | 0.09U |
| Antimony | | | 0.01U |
| Arsenic | | | 0.01U |
| Beryllium | | | 0.004U |
| Cadmium | | | 0.0001U |
| Chromium | | | 0.002U |
| Copper | | | 0.01U |
| Lead | | | 0.003U |
| Mercury | | | 0.0002U |
| Nickel | | | 0.002U |
| Selenium | | | 0.005U |
| Silver | | | N/A |
| Thallium | | | 0.004U |
| Zinc | | | 0.02U |

U - Indicates compound analyzed for but not detected.
 FB - Field Blank

mg/L - milligrams per liter

Table K.6
Analytical Results of Equipment Rinseate Blank Samples for Site 17
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/L) | Location No.: | | 017-RB 01 | | 017-RB 02 | | 017-RB 03 | |
|-----------------------------|---------------|---------|-----------|---------|--------------|---------|-----------|------------|
| | Sample Date: | 7/18/94 | 7/19/94 | 7/20/94 | Sample Date: | 7/19/94 | 7/20/94 | 9407813-01 |
| Lab Sample No.: | Matrix | Water | Water | Water | Water | Water | Water | Water |
| Acenaphthene | | SU | SU | SU | SU | SU | SU | SU |
| Acenaphthylene | | SU | SU | SU | SU | SU | SU | SU |
| Aniline | | SU | SU | SU | SU | SU | SU | SU |
| Anthracene | | SU | SU | SU | SU | SU | SU | SU |
| Benzo (a) Anthracene | | SU | SU | SU | SU | SU | SU | SU |
| Benzo (b) Fluoranthene | | SU | SU | SU | SU | SU | SU | SU |
| Benzo (k) Fluoranthene | | SU | SU | SU | SU | SU | SU | SU |
| Benzo (a) Pyrene | | SU | SU | SU | SU | SU | SU | SU |
| Benzoic Acid | | 25U | 25U | 25U | 25U | 25U | 25U | 25U |
| Benzo(g,h,i)Perylene | | SU | SU | SU | SU | SU | SU | SU |
| Benzyl alcohol | | SU | SU | SU | SU | SU | SU | SU |
| 4-Bromophenylphenyl ether | | SU | SU | SU | SU | SU | SU | SU |
| Butylbenzylphthalate | | SU | SU | SU | SU | SU | SU | SU |
| di-n-Butyl phthalate | | SU | SU | SU | SU | SU | SU | SU |
| Carbazole | | SU | SU | SU | SU | SU | SU | SU |
| 4-Chloroaniline | | SU | SU | SU | SU | SU | SU | SU |
| bis(2-Chloroethoxy)Methane | | SU | SU | SU | SU | SU | SU | SU |
| bis(2-Chloroethyl)Ether | | SU | SU | SU | SU | SU | SU | SU |
| bis(2-Chloroisopropyl)Ether | | SU | SU | SU | SU | SU | SU | SU |
| 4-Chloro-3-Methylphenol | | SU | SU | SU | SU | SU | SU | SU |
| 2-Chloronaphthalene | | SU | SU | SU | SU | SU | SU | SU |
| 2-Chlorophenol | | SU | SU | SU | SU | SU | SU | SU |
| 4-Chlorophenylphenyl ether | | SU | SU | SU | SU | SU | SU | SU |
| Chrysene | | SU | SU | SU | SU | SU | SU | SU |
| Dibenz(a,h)Anthracene | | SU | SU | SU | SU | SU | SU | SU |
| Dibenzofuran | | SU | SU | SU | SU | SU | SU | SU |
| 1,2-Dichlorobenzene | | SU | SU | SU | SU | SU | SU | SU |
| 1,3-Dichlorobenzene | | SU | SU | SU | SU | SU | SU | SU |
| 1,4-Dichlorobenzene | | SU | SU | SU | SU | SU | SU | SU |
| 3,3'-Dichlorobenzidine | | SU | SU | SU | SU | SU | SU | SU |
| 2,4-Dichlorophenol | | SU | SU | SU | SU | SU | SU | SU |
| Diethylphthalate | | SU | SU | SU | SU | SU | SU | SU |
| 2,4-Dimethylphenol | | SU | SU | SU | SU | SU | SU | SU |
| Dimethyl Phthalate | | SU | SU | SU | SU | SU | SU | SU |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
TPH - Total petroleum hydrocarbons

RB - Rinseate Blank
ug/L - micrograms per liter
mg/L - milligrams per liter

Table K.6
Analytical Results of Equipment Rinseate Blank Samples for Site 17
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/L) | Location No.: 017-RB 01 | | 017-RB 02 | | 017-RB 03 | |
|------------------------------|----------------------------|--|------------|--|------------|--|
| | Sample Date: 7/18/94 | | 7/19/94 | | 7/20/94 | |
| Matrix | Lab Sample No.: 9407681-12 | | 9407703-01 | | 9407813-01 | |
| | Water | | Water | | Water | |
| 4,6-Dinitro-2-Methylphenol | 25U | | 25U | | 25U | |
| 2,4-Dinitrophenol | 25U | | 25U | | 25U | |
| 2,4-Dinitrotoluene | 5U | | 5U | | 5U | |
| 2,6-Dinitrotoluene | 5U | | 5U | | 5U | |
| 1,2-Diphenylhydrazine | 5U | | 5U | | 5U | |
| bis (2-Ethylhexyl) Phthalate | 5U | | 5U | | 5U | |
| Fluoranthene | 5U | | 5U | | 5U | |
| Fluorene | 5U | | 5U | | 5U | |
| Hexachlorobenzene | 5U | | 5U | | 5U | |
| Hexachlorobutadiene | 5U | | 5U | | 5U | |
| Hexachloroethane | 5U | | 5U | | 5U | |
| Hexachlorocyclopentadiene | 5U | | 5U | | 5U | |
| Indeno (1,2,3-cd) Pyrene | 5U | | 5U | | 5U | |
| Isophorone | 5U | | 5U | | 5U | |
| 2-Methylnaphthalene | 5U | | 5U | | 5U | |
| 2-Methylphenol | 5U | | 5U | | 5U | |
| 4-Methylphenol | 5U | | 5U | | 5U | |
| Naphthalene | 5U | | 5U | | 5U | |
| 2-Nitroaniline | 25U | | 25U | | 25U | |
| 3-Nitroaniline | 25U | | 25U | | 25U | |
| 4-Nitroaniline | 25U | | 25U | | 25U | |
| Nitrobenzene | 5U | | 5U | | 5U | |
| 2-Nitrophenol | 5U | | 5U | | 5U | |
| 4-Nitrophenol | 25U | | 25U | | 25U | |
| N-Nitrosodiphenylamine (I) | 5U | | 5U | | 5U | |
| N-Nitroso-Di-n-Propylamine | 5U | | 5U | | 5U | |
| Di-n-Octyl Phthalate | 5U | | 5U | | 5U | |
| Pentachlorophenol | 25U | | 25U | | 25U | |
| Phenanthrene | 5U | | 5U | | 5U | |
| Phenol | 5U | | 5U | | 5U | |
| Pyrene | 5U | | 5U | | 5U | |
| Pyridine | 5U | | 5U | | 5U | |
| 1,2,4-Trichlorobenzene | 5U | | 5U | | 5U | |
| 2,4,5-Trichlorophenol | 10U | | 10U | | 10U | |
| 2,4,6-Trichlorophenol | 5U | | 5U | | 5U | |
| TPH (mg/L) | 0.5U | | 0.5U | | 0.5U | |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
TPH - Total petroleum hydrocarbons

RB - Rinseate Blank
ug/L - micrograms per liter
mg/L - milligrams per liter

Table K.7
Analytical Results of Equipment Rinseate Blank Samples for Site 18
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | | 018-RB 01 7/25/94 9407971-04 | 018-RB 02 10/5/94 9410180-07 |
|--|--------|------------------------------------|------------------------------------|
| VOCs (ug/L) | Matrix | Water | Water |
| Acetone | | 10U | 10U |
| Benzene | | 5U | 5U |
| Bromodichloromethane | | 5U | 5U |
| Bromoform | | 5U | 5U |
| Bromomethane | | 10U | 10U |
| 2-Butanone | | 20U | 20U |
| Carbon Disulfide | | 5U | 5U |
| Carbon Tetrachloride | | 5U | 5U |
| Chlorobenzene | | 5U | 5U |
| Chloroethane | | 10U | 10U |
| 2-Chloroethylvinylether | | 10U | 10U |
| Chloroform | | 5U | 5U |
| Chloromethane | | 10U | 10U |
| Dibromochloromethane | | 5U | 5U |
| 1,1-Dichloroethane | | 5U | 5U |
| 1,1-Dichloroethene | | 5U | 5U |
| 1,2-Dichloroethane | | 5U | 5U |
| total -1,2-Dichloroethene | | 5U | 5U |
| 1,2-Dichloropropane | | 5U | 5U |
| cis-1,3-Dichloropropene | | 5U | 5U |
| trans-1,3-Dichloropropene | | 5U | 5U |
| Ethylbenzene | | 5U | 5U |
| 2-Hexanone | | 10U | 10U |
| Methylene Chloride | | 5U | 5U |
| 4-Methyl-2-Pentanone | | 10U | 10U |
| Styrene | | 5U | 5U |
| 1,1,2,2-Tetrachloroethane | | 5U | 5U |
| Tetrachloroethene | | 5U | 5U |
| Toluene | | 5U | 5U |
| 1,1,1-Trichloroethane | | 5U | 5U |
| 1,1,2-Trichloroethane | | 5U | 5U |
| Trichloroethene | | 5U | 5U |
| Trichlorofluoromethane | | 5U | 5U |
| Vinyl Acetate | | 10U | 10U |
| Vinyl Chloride | | 10U | 10U |
| Xylenes (total) | | 5U | 5U |

U - Indicates compound analyzed for but not detected.
VOCs - Volatile organic compounds

RB - Rinseate Blank
ug/L - micrograms per liter

Table K.8
Analytical Results of Equipment Rinsate Blank Samples for Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| VOCs (ug/L) | Location No.: Sample Date: Lab Sample No.: | 021-RB-01 7/13/94 9407473-01 | 021-RB-02 7/14/94 9407567-13 | 021-RB-03 7/15/94 9407612-05 | 021-RB-04 7/22/94 9407999-02 | 021-RB-05 7/25/94 9407971-02 | 021-RB-07 10/5/94 9410180-08 | 021-RB-08 10/6/94 9410269-07 |
|---------------------------|--|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Matrix | Water | Water | Water | Water | Water | Water | Water | Water |
| Acetone | 10U | 10U | 10U | 10U | N/A | 10U | 10U | 10U |
| Benzene | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| Bromodichloromethane | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| Bromoform | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| Bromomethane | 10U | 10U | 10U | 10U | N/A | 10U | 10U | 10U |
| 2-Butanone | 20U | 20U | 20U | 20U | N/A | 20U | 20U | 22 |
| Carbon Disulfide | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| Carbon Tetrachloride | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| Chlorobenzene | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| Chloroethane | 10U | 10U | 10U | 10U | N/A | 10U | 10U | 10U |
| 2-Chloroethylvinylether | 10U | 10U | 10U | 10U | N/A | 10U | 10U | 10U |
| Chloroform | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| Chloromethane | 10U | 10U | 10U | 10U | N/A | 10U | 10U | 10U |
| Dibromochloromethane | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| 1,1-Dichloroethane | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| 1,1-Dichloroethene | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| 1,2-Dichloroethane | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| total 1,2-Dichloroethene | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| 1,2-Dichloropropane | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| cis-1,3-Dichloropropene | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| trans-1,3-Dichloropropene | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| Ethylbenzene | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| 2-Hexanone | 10U | 10U | 10U | 10U | N/A | 10U | 10U | 10U |
| Methylene Chloride | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| 4-Methyl-2-Pentanone | 10U | 10U | 10U | 10U | N/A | 10U | 10U | 10U |
| Styrene | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| 1,1,2,2-Tetrachloroethane | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| Tetrachloroethene | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| Toluene | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| 1,1,1-Trichloroethane | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| 1,1,2-Trichloroethane | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| Trichloroethene | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| Trichlorofluoromethane | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |
| Vinyl Acetate | 10U | 10U | 10U | 10U | N/A | 10U | 10U | 10U |
| Vinyl Chloride | 10U | 10U | 10U | 10U | N/A | 10U | 10U | 10U |
| Xylenes (total) | 5U | 5U | 5U | 5U | N/A | 5U | 5U | 5U |

U - Indicates compound analyzed for but not detected.

VOCs - Volatile organic compounds

N/A - Not analyzed

RB - Rinsate Blank
ug/L - micrograms per liter

Table K.8
Analytical Results of Equipment Rinseate Blank Samples for Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/L) | Location No.: | | 021-RB 01 | | 021-RB 02 | | 021-RB 03 | | 021-RB 04 | | 021-RB 05 | | 021-RB 07 | |
|-----------------------------|---------------|--------|------------|-------|------------|-------|------------|-------|------------|-------|------------|-------|------------|-------|
| | Sample Date: | Matrix | 7/13/94 | Water | 7/14/94 | Water | 7/15/94 | Water | 7/22/94 | Water | 7/25/94 | Water | 10/5/94 | Water |
| Lab Sample No.: | | | 9407473-01 | | 9407567-13 | | 9407612-05 | | 9407999-02 | | 9407971-02 | | 9410180-08 | |
| Acenaphthene | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| Acenaphthylene | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| Aniline | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| Anthracene | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| Benzo (a) Anthracene | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| Benzo (b) Fluoranthene | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| Benzo (k) Fluoranthene | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| Benzo (a) Pyrene | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| Benzoic Acid | | | 25U | 25U | 25U | 25U | 25U | 25U | N/A | N/A | 25U | 25U | 25U | 25U |
| Benzo(g,h,i)Perylene | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| Benzyl alcohol | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| 4-Bromophenylphenyl ether | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| Butylbenzylphthalate | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| di-n-Butyl phthalate | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| Carbazole | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| 4-Chloroaniline | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| bis(2-Chloroethoxy)Methane | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| bis(2-Chloroethyl)Ether | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| bis(2-Chloroisopropyl)Ether | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| 4-Chloro-3-Methylphenol | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| 2-Chloronaphthalene | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| 2-Chlorophenol | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| 4-Chlorophenylphenyl ether | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| Chrysene | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| Dibenz(a,h)Anthracene | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| Dibenzofuran | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| 1,2-Dichlorobenzene | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| 1,3-Dichlorobenzene | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| 1,4-Dichlorobenzene | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| 3,3'-Dichlorobenzidine | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| 2,4-Dichlorophenol | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| Diethylphthalate | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| 2,4-Dimethylphenol | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |
| Dimethyl Phthalate | | | SU | SU | SU | SU | SU | SU | N/A | N/A | SU | SU | SU | SU |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
TPH - Total petroleum hydrocarbons
N/A - Not analyzed

RB - Rinseate Blank
ug/L - micrograms per liter
mg/L - milligrams per liter

Table K.8
Analytical Results of Equipment Rinseate Blank Samples for Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/L) | Location No.: | | Sample Date: | | Lab Sample No.: | | 021-RB 01 | | 021-RB 02 | | 021-RB 03 | | 021-RB 04 | | 021-RB 05 | | 021-RB 07 | |
|------------------------------|---------------|-------|--------------|---------|-----------------|------------|-----------|------|-----------|------|-----------|------|-----------|-----|-----------|------|-----------|------|
| | Matrix | Water | 7/13/94 | 7/14/94 | 9407473-01 | 9407567-13 | Water | 25U | Water | 25U | Water | 25U | Water | 25U | Water | 25U | Water | 25U |
| 4,6-Dinitro-2-Methylphenol | | 25U | | | | | | 25U | | 25U | | 25U | | N/A | | 25U | | 25U |
| 2,4-Dinitrophenol | | 25U | | | | | | 25U | | 25U | | 25U | | N/A | | 25U | | 25U |
| 2,4-Dinitrotoluene | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| 2,6-Dinitrotoluene | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| 1,2-Diphenylhydrazine | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| bis (2-Ethylhexyl) Phthalate | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 8 |
| Fluoranthene | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| Fluorene | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| Hexachlorobenzene | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| Hexachlorobutadiene | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| Hexachlorocyclopentadiene | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| Indeno (1,2,3-cd) Pyrene | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| Isophorone | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| 2-Methylnaphthalene | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| 2-Methylphenol | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| 4-Methylphenol | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| Naphthalene | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| 2-Nitroaniline | | 25U | | | | | | 25U | | 25U | | 25U | | N/A | | 25U | | 25U |
| 3-Nitroaniline | | 25U | | | | | | 25U | | 25U | | 25U | | N/A | | 25U | | 25U |
| 4-Nitroaniline | | 25U | | | | | | 25U | | 25U | | 25U | | N/A | | 25U | | 25U |
| Nitrobenzene | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| 2-Nitrophenol | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 25U |
| 4-Nitrophenol | | 25U | | | | | | 25U | | 25U | | 25U | | N/A | | 25U | | 25U |
| N-Nitrosodiphenylamine (1) | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| N-Nitroso-Di-n-Propylamine | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| Di-n-Octyl Phthalate | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| Pentachlorophenol | | 25U | | | | | | 25U | | 25U | | 25U | | N/A | | 25U | | 25U |
| Phenanthrene | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| Phenol | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| Pyrene | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| Pyridine | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| 1,2,4-Trichlorobenzene | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| 2,4,5-Trichlorophenol | | 10U | | | | | | 10U | | 10U | | 10U | | N/A | | 10U | | 10U |
| 2,4,6-Trichlorophenol | | 5U | | | | | | 5U | | 5U | | 5U | | N/A | | 5U | | 5U |
| TPH (mg/L) | | 0.5U | | | | | | 0.5U | | 0.5U | | 0.5U | | N/A | | 0.5U | | 0.5U |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
TPH - Total petroleum hydrocarbons
N/A - Not analyzed

RB - Rinseate Blank
ug/L - micrograms per liter
mg/L - milligrams per liter

Table K.8
Analytical Results of Equipment Rinseate Blank Samples for Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Pesticides/PCBs (ug/L) | Location No.: | 021-RB 01 | 021-RB 02 | 021-RB 03 | 021-RB 04 | 021-RB 05 | 021-RB 07 |
|------------------------|-----------------|------------|------------|------------|------------|------------|------------|
| | Sample Date: | 7/13/94 | 7/14/94 | 7/15/94 | 7/22/94 | 7/25/94 | 10/5/94 |
| | Lab Sample No.: | 9407473-01 | 9407567-13 | 9407612-05 | 9407999-02 | 9407971-02 | 9410180-08 |
| | Matrix | Water | Water | Water | Water | Water | Water |
| a-BHC | | 0.04U | 0.02U | 0.02U | N/A | 0.02U | 0.02U |
| b-BHC | | 0.10U | 0.05U | 0.05U | N/A | 0.05U | 0.05U |
| d-BHC | | 0.10U | 0.05U | 0.05U | N/A | 0.05U | 0.05U |
| g-BHC | | 0.06U | 0.03U | 0.03U | N/A | 0.03U | 0.03U |
| Heptachlor | | 0.06U | 0.03U | 0.03U | N/A | 0.03U | 0.03U |
| Aldrin | | 0.04U | 0.02U | 0.02U | N/A | 0.02U | 0.02U |
| Heptachlor Epoxide | | 0.10U | 0.05U | 0.05U | N/A | 0.05U | 0.05U |
| Endosulfan I | | 0.10U | 0.05U | 0.05U | N/A | 0.05U | 0.05U |
| Dieldrin | | 0.02U | 0.01U | 0.01U | N/A | 0.01U | 0.01U |
| Endrin | | 0.08U | 0.04U | 0.04U | N/A | 0.04U | 0.04U |
| Endosulfan II | | 0.06U | 0.03U | 0.03U | N/A | 0.03U | 0.03U |
| 4,4'-DDT | | 0.13U | 0.07U | 0.07U | N/A | 0.07U | 0.07U |
| Endrin Aldehyde | | 0.19U | 0.10U | 0.10U | N/A | 0.10U | 0.10U |
| Methoxychlor | | 0.10U | 0.05U | 0.05U | N/A | 0.05U | 0.05U |
| a-Chlordane | | 0.10U | 0.05U | 0.05U | N/A | 0.05U | 0.05U |
| g-Chlordane | | 0.02U | 0.01U | 0.01U | N/A | 0.01U | 0.01U |
| 4,4'-DDE | | 0.04U | 0.02U | 0.02U | N/A | 0.02U | 0.02U |
| 4,4'-DDD | | 0.19U | 0.10U | 0.10U | N/A | 0.10U | 0.10U |
| Endosulfan Sulfate | | 0.19U | 0.10U | 0.10U | N/A | 0.10U | 0.10U |
| Endrin Ketone | | 0.19U | 0.10U | 0.10U | N/A | 0.10U | 0.10U |
| Toxaphene | | 1.9U | 1.0U | 1.0U | N/A | 1.0U | 1.0U |
| Chlordane (technical) | | 0.10U | 0.05U | 1.7U | N/A | 0.05U | 0.05U |

U - Indicates compound analyzed for but not detected.

PCBs - Polychlorinated biphenyls

N/A - Not analyzed

RB - Rinseate Blank
ug/L - micrograms per liter
mg/L - milligrams per liter

Table K.8
Analytical Results of Equipment Rinseate Blank Samples for Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| | Location No.: Sample Date: Lab Sample No.: | 021-RB 01 7/13/94 9407473-01 | | 021-RB 02 7/14/94 9407567-13 | | 021-RB 03 7/15/94 9407612-05 | | 021-RB 04 7/22/94 9407999-02 | | 021-RB 05 7/25/94 9407971-02 | | 021-RB 07 10/5/94 9410180-08 | |
|----------------------|--|------------------------------------|--------|------------------------------------|--------|------------------------------------|--------|------------------------------------|--------|------------------------------------|--------|------------------------------------|--------|
| | | Water | Matrix | Water | Matrix | Water | Matrix | Water | Matrix | Water | Matrix | Water | Matrix |
| PCB-1016 | | 1.0U | | 0.5U | | 0.5U | | N/A | | 0.5U | | 0.5U | |
| PCB-1221 | | 1.0U | | 0.5U | | 0.5U | | N/A | | 0.5U | | 0.5U | |
| PCB-1232 | | 1.0U | | 0.5U | | 0.5U | | N/A | | 0.5U | | 0.5U | |
| PCB-1242 | | 1.0U | | 0.5U | | 0.5U | | N/A | | 0.5U | | 0.5U | |
| PCB-1248 | | 1.0U | | 0.5U | | 0.5U | | N/A | | 0.5U | | 0.5U | |
| PCB-1254 | | 1.0U | | 0.5U | | 0.5U | | N/A | | 0.5U | | 0.5U | |
| PCB-1260 | | 1.0U | | 0.5U | | 0.5U | | N/A | | 0.5U | | 0.5U | |
| Metals (mg/L) | | | | | | | | | | | | | |
| Aluminum | | 0.09U | | 0.11 | | 0.09U | | 0.09U | | 0.09U | | N/A | |
| Antimony | | 0.01U | | 0.01U | | 0.01U | | 0.01U | | 0.01U | | N/A | |
| Arsenic | | 0.01U | | 0.01U | | 0.01U | | 0.01U | | 0.01U | | N/A | |
| Beryllium | | 0.004U | | 0.004U | | 0.004U | | 0.004U | | 0.004U | | N/A | |
| Cadmium | | 0.0001U | | 0.0001U | | 0.0001U | | 0.0002 | | 0.0001U | | N/A | |
| Chromium | | 0.002U | | 0.007 | | 0.002U | | 0.002U | | 0.002U | | N/A | |
| Copper | | 0.01U | | 0.01 | | 0.15 | | 0.01U | | 0.01U | | N/A | |
| Lead | | 0.003U | | 0.003U | | 0.003U | | 0.003U | | 0.003U | | N/A | |
| Mercury | | 0.0002U | | 0.0002U | | 0.0002U | | 0.0002U | | 0.0002U | | N/A | |
| Nickel | | 0.002U | | 0.002U | | 0.006 | | 0.002U | | 0.002U | | N/A | |
| Selenium | | 0.008U | | 0.005U | | 0.005U | | 0.005U | | 0.008U | | N/A | |
| Silver | | 0.006U | | 0.006U | | 0.006U | | N/A | | N/A | | N/A | |
| Thallium | | 0.004U | | 0.004U | | 0.004U | | 0.004U | | 0.004U | | N/A | |
| Zinc | | 0.02U | | 0.03 | | 0.12 | | 0.62 | | 0.02 | | N/A | |

U - Indicates compound analyzed for but not detected.
PCBs - Polychlorinated biphenyls
N/A - Not analyzed

RB - Rinseate Blank
ug/L - micrograms per liter
mg/L - milligrams per liter

Table K.9
Analytical Results of Matrix Spike/Matrix Spike Duplicate Soil Samples at Site 17
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/kg) | Location No.: 017-13 BH-9 0-9.5 - MS | | 017-13 BH-9 0-9.5 - MSD | | 017-017 BH-9 0-9.5 - MS | | 017-017 BH-9 0-9.5 - MSD | | 017-017 BH-9 0-9.5 - MSD | |
|-----------------------------|--------------------------------------|---------|-------------------------|------------|-------------------------|--------|--------------------------|---------|--------------------------|------------|
| | Matrix | 7/18/94 | Soil | 9407680-10 | 7/18/94 | Soil | 9407680-11 | 7/19/94 | Soil | 9407703-16 |
| Acenaphthene | | | 1,800 | | | 1,200 | | | 1,500 | |
| Acenaphthylene | | | 330U | | | 330U | | | 330U | |
| Aniline | | | 330U | | | 330U | | | 330U | |
| Anthracene | | | 330U | | | 330U | | | 330U | |
| Benzo (a) Anthracene | | | 330U | | | 330U | | | 330U | |
| Benzo (b) Fluoranthene | | | 330U | | | 330U | | | 330U | |
| Benzo (k) Fluoranthene | | | 330U | | | 330U | | | 330U | |
| Benzo (a) Pyrene | | | 330U | | | 330U | | | 330U | |
| Benzoic Acid | | | 1,600U | | | 1,600U | | | 1,600U | |
| Benzo(g,h,i)Perylene | | | 330U | | | 330U | | | 330U | |
| Benzyl alcohol | | | 330U | | | 330U | | | 330U | |
| 4-Bromophenylphenyl ether | | | 330U | | | 330U | | | 330U | |
| Butylbenzylphthalate | | | 330U | | | 330U | | | 330U | |
| di-n-Butyl phthalate | | | 330U | | | 330U | | | 330U | |
| Carbazole | | | 330U | | | 330U | | | 330U | |
| 4-Chloroaniline | | | 330U | | | 330U | | | 330U | |
| bis(2-Chloroethoxy)Methane | | | 330U | | | 330U | | | 330U | |
| bis(2-Chloroethyl)Ether | | | 330U | | | 330U | | | 330U | |
| bis(2-Chloroisopropyl)Ether | | | 330U | | | 330U | | | 330U | |
| 4-Chloro-3-Methylphenol | | | 2,600 | | | 1,700 | | | 2,200 | |
| 2-Chloronaphthalene | | | 330U | | | 330U | | | 330U | |
| 2-Chlorophenol | | | 2,500 | | | 1,700 | | | 1,600 | |
| 4-Chlorophenylphenyl ether | | | 330U | | | 330U | | | 330U | |
| Chrysene | | | 330U | | | 330U | | | 330U | |
| Dibenz(a,h)Anthracene | | | 330U | | | 330U | | | 330U | |
| Dibenzofuran | | | 330U | | | 330U | | | 330U | |
| 1,2-Dichlorobenzene | | | 330U | | | 330U | | | 330U | |
| 1,3-Dichlorobenzene | | | 330U | | | 330U | | | 330U | |
| 1,4-Dichlorobenzene | | | 1,600 | | | 1,100 | | | 1,200 | |
| 3,3'-Dichlorobenzidine | | | 330U | | | 330U | | | 330U | |
| 2,4-Dichlorophenol | | | 330U | | | 330U | | | 330U | |
| Diethylphthalate | | | 330U | | | 330U | | | 330U | |
| 2,4-Dimethylphenol | | | 330U | | | 330U | | | 330U | |
| Dimethyl Phthalate | | | 330U | | | 330U | | | 330U | |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
TPH - Total petroleum hydrocarbons

MS - Matrix Spike
MSD - Matrix Spike Duplicate
ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

Table K.9
Analytical Results of Matrix Spike/Matrix Spike Duplicate Soil Samples at Site 17
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/kg) | Location No.: 017-13 BH-9.0-9.5 - MS | | 017-13 BH-9.0-9.5 - MSD | | 017-017 BH-9.0-9.5 - MS | | 017-017 BH-9.0-9.5 - MSD | |
|------------------------------|--------------------------------------|------------|-------------------------|------------|-------------------------|------------|--------------------------|------------|
| | Sample Date: | 7/18/94 | 7/18/94 | 7/18/94 | 7/19/94 | 7/19/94 | 7/19/94 | 7/19/94 |
| Lab Sample No.: | Matrix | 9407680-10 | 9407680-11 | 9407680-11 | 9407703-16 | 9407703-16 | 9407703-17 | 9407703-17 |
| SVOCs (ug/kg) | Matrix | Soil | Soil | Soil | Soil | Soil | Soil | Soil |
| 4,6-Dinitro-2-Methylphenol | | 800U | 800U | 800U | 800U | 800U | 800U | 800U |
| 2,4-Dinitrophenol | | 800U | 800U | 800U | 800U | 800U | 800U | 800U |
| 2,4-Dinitrotoluene | | 1,700 | 1,100 | 1,100 | 1,300 | 1,300 | 1,200 | 1,200 |
| 2,6-Dinitrotoluene | | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 1,2-Diphenylhydrazine | | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| bis (2-Ethylhexyl) Phthalate | | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Fluoranthene | | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Fluorene | | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Hexachlorobenzene | | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Hexachlorobutadiene | | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Hexachloroethane | | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Hexachlorocyclopentadiene | | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Indeno (1,2,3-cd) Pyrene | | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Isophorone | | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 2-Methylnaphthalene | | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 2-Methylphenol | | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 4-Methylphenol | | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Naphthalene | | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 2-Nitroaniline | | 800U | 800U | 800U | 800U | 800U | 800U | 800U |
| 3-Nitroaniline | | 800U | 800U | 800U | 800U | 800U | 800U | 800U |
| 4-Nitroaniline | | 800U | 800U | 800U | 800U | 800U | 800U | 800U |
| Nitrobenzene | | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 2-Nitrophenol | | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 4-Nitrophenol | | 2,800 | 1,500 | 1,500 | 2,500 | 2,500 | 2,100 | 2,100 |
| N-Nitrosodiphenylamine (1) | | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| N-Nitroso-Di-n-Propylamine | | 1,700 | 1,100 | 1,100 | 1,200 | 1,200 | 1,200 | 1,200 |
| Di-n-Octyl Phthalate | | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Pentachlorophenol | | 1,500 | 590 | 590 | 3,500 | 3,500 | 3,400 | 3,400 |
| Phenanthrene | | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| Phenol | | 2,500 | 1,800 | 1,800 | 1,700 | 1,700 | 1,500 | 1,500 |
| Pyrene | | 2,100 | 1,300 | 1,300 | 1,500 | 1,500 | 1,400 | 1,400 |
| Pyridine | | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| 1,2,4-Trichlorobenzene | | 1,700 | 1,100 | 1,100 | 1,300 | 1,300 | 1,200 | 1,200 |
| 2,4,5-Trichlorophenol | | 800U | 800U | 800U | 800U | 800U | 800U | 800U |
| 2,4,6-Trichlorophenol | | 330U | 330U | 330U | 330U | 330U | 330U | 330U |
| TPH (mg/kg) | | 430 | 430 | 430 | 420 | 420 | 400 | 400 |

U - Indicates compound analyzed for but not detected.
SVOCs - Semi-volatile organic compounds
TPH - Total petroleum hydrocarbons

MS - Matrix Spike
MSD - Matrix Spike Duplicate
ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

Table K.10
Analytical Results of Matrix Spike/Matrix Spike Duplicate Soil Samples at Site 18
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: 018-006 BH2-0.8-1.3 - MS | | 018-006 BH2-0.8-1.3 - MSD | |
|--|--------|---------------------------|------|
| Sample Date: 10/5/04 | | 10/5/04 | |
| Lab Sample No.: 9410180-11 | | 9410180-12 | |
| VOCs (ug/kg) | Matrix | Soil | Soil |
| Acetone | | 10U | 10U |
| Benzene | | 45 | 44 |
| Bromodichloromethane | | 5U | 5U |
| Bromoform | | 5U | 5U |
| Bromomethane | | 10U | 10U |
| 2-Butanone | | 20U | 20U |
| Carbon Disulfide | | 5U | 5U |
| Carbon Tetrachloride | | 5U | 5U |
| Chlorobenzene | | 42 | 40 |
| Chloroethane | | 10U | 10U |
| 2-Chloroethylvinylether | | 10U | 10U |
| Chloroform | | 5U | 5U |
| Chloromethane | | 10U | 10U |
| Dibromochloromethane | | 5U | 5U |
| 1,1-Dichloroethane | | 5U | 5U |
| 1,1,1-Dichloroethene | | 54 | 55 |
| 1,2-Dichloroethane | | 5U | 5U |
| total -1,2-Dichloroethene | | 5U | 5U |
| 1,2-Dichloropropane | | 5U | 5U |
| cis-1,3-Dichloropropene | | 5U | 5U |
| trans-1,3-Dichloropropene | | 5U | 5U |
| Ethylbenzene | | 5U | 5U |
| 2-Hexanone | | 10U | 10U |
| Methylene Chloride | | 5 | 5 |
| 4-Methyl-2-Pentanone | | 10U | 10U |
| Styrene | | 5U | 5U |
| 1,1,2,2-Tetrachloroethane | | 5U | 5U |
| Tetrachloroethene | | 5U | 5U |
| Toluene | | 45 | 48 |
| 1,1,1-Trichloroethane | | 5U | 5U |
| 1,1,2-Trichloroethane | | 5U | 5U |
| Trichloroethene | | 44 | 41 |
| Trichlorofluoromethane | | 5U | 5U |
| Vinyl Acetate | | 10U | 10U |
| Vinyl Chloride | | 10U | 10U |
| Xylenes (total) | | 5U | 6 |

U - Indicates compound analyzed for but not detected.
VOCs - Volatile organic compounds

MS - Matrix Spike
MSD - Matrix Spike Duplicate
ug/kg - micrograms per kilogram

Table K.11
Analytical Results of Matrix Spike/Matrix Spike Duplicate Soil Samples at Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| VOCs (ug/kg) | Matrix | 021-018 BH-10.0-10.5 - MS | | 021-018 BH-10.0-10.5 - MSD | | 021-025 BH-14.0-14.5 - MS | | 021-025 BH-14.0-14.5 - MSD | |
|---------------------------|--------|---------------------------|------|----------------------------|------|---------------------------|------|----------------------------|------|
| | | 7/14/94 | Soil | 7/14/94 | Soil | 7/12/94 | Soil | 7/12/94 | Soil |
| Lab Sample No.: | | 9407567-15 | | 9407567-16 | | 9407405-11 | | 9407443-12 | |
| Acetone | | 11 | 10U | | 10U | | 10U | | 10U |
| Benzene | | 51 | 50 | | 52 | | 51 | | 51 |
| Bromodichloromethane | | 5U | 5U | | 5U | | 5U | | 5U |
| Bromoform | | 5U | 5U | | 5U | | 5U | | 5U |
| Bromomethane | | 10U | 10U | | 10U | | 10U | | 10U |
| 2-Butanone | | 20U | 20U | | 20U | | 20U | | 20U |
| Carbon Disulfide | | 5U | 5U | | 5U | | 5U | | 5U |
| Carbon Tetrachloride | | 5U | 5U | | 5U | | 5U | | 5U |
| Chlorobenzene | | 50 | 50 | | 50 | | 50 | | 50 |
| Chloroethane | | 10U | 10U | | 10U | | 10U | | 10U |
| 2-Chloroethylvinylether | | 10U | 10U | | 10U | | 10U | | 10U |
| Chloroform | | 5U | 5U | | 5U | | 5U | | 5U |
| Chloromethane | | 10U | 10U | | 10U | | 10U | | 10U |
| Dibromochloromethane | | 5U | 5U | | 5U | | 5U | | 5U |
| 1,1-Dichloroethane | | 5U | 5U | | 5U | | 5U | | 5U |
| 1,1-Dichloroethene | | 49 | 50 | | 63 | | 49 | | 49 |
| 1,2-Dichloroethane | | 5U | 5U | | 5U | | 5U | | 5U |
| total -1,2-Dichloroethene | | 5U | 5U | | 5U | | 5U | | 5U |
| 1,2-Dichloropropane | | 5U | 5U | | 5U | | 5U | | 5U |
| cis-1,3-Dichloropropene | | 5U | 5U | | 5U | | 5U | | 5U |
| trans-1,3-Dichloropropene | | 5U | 5U | | 5U | | 5U | | 5U |
| Ethylbenzene | | 5U | 5U | | 5U | | 5U | | 5U |
| 2-Hexanone | | 10U | 10U | | 10U | | 10U | | 10U |
| Methylene Chloride | | 5U | 5U | | 5U | | 5U | | 5U |
| 4-Methyl-2-Pentanone | | 10U | 10U | | 10U | | 10U | | 10U |
| Styrene | | 5U | 5U | | 5U | | 5U | | 5U |
| 1,1,2,2-Tetrachloroethane | | 5U | 5U | | 5U | | 5U | | 5U |
| Tetrachloroethene | | 5U | 5U | | 5U | | 5U | | 5U |
| Toluene | | 50 | 50 | | 52 | | 51 | | 51 |
| 1,1,1-Trichloroethane | | 5U | 5U | | 5U | | 5U | | 5U |
| 1,1,2-Trichloroethane | | 5U | 5U | | 5U | | 5U | | 5U |
| Trichloroethene | | 49 | 48 | | 48 | | 48 | | 48 |
| Trichlorofluoromethane | | 5U | 5U | | 5U | | 5U | | 5U |
| Vinyl Acetate | | 10U | 10U | | 10U | | 10U | | 10U |
| Vinyl Chloride | | 10U | 10U | | 10U | | 10U | | 10U |
| Xylenes (total) | | 5U | 5U | | 5U | | 5U | | 5U |

U - Indicates compound analyzed for but not detected.
VOCs - Volatile organic compounds

MS - Matrix Spike
MSD - Matrix Spike Duplicate
ug/kg - micrograms per kilogram

Table K.11
Analytical Results of Matrix Spike/Matrix Spike Duplicate Soil Samples at Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/kg) | Location No.: 021-018 BH-10.0-10.5 - MS | | 021-018 BH-10.0-10.5 - MSD | | 021-025 BH-14.0-14.5 - MS | | 021-025 BH-14.0-14.5 - MSD | |
|-----------------------------|---|----------------------|----------------------------|--------|---------------------------|----------------------------|----------------------------|----------------------|
| | Matrix | Sample Date: 7/14/94 | Lab Sample No.: 9407567-15 | Soil | Sample Date: 7/12/94 | Lab Sample No.: 9407405-11 | Soil | Sample Date: 7/12/94 |
| Acenaphthene | | 1,400 | | 1,500 | | 1,200 | | 1,300 |
| Acenaphthylene | | 330U | | 330U | | 330U | | 330U |
| Aniline | | 330U | | 330U | | 330U | | 330U |
| Anthracene | | 330U | | 330U | | 330U | | 330U |
| Benzo (a) Anthracene | | 330U | | 330U | | 330U | | 330U |
| Benzo (b) Fluoranthene | | 330U | | 330U | | 330U | | 330U |
| Benzo (k) Fluoranthene | | 330U | | 330U | | 330U | | 330U |
| Benzo (a) Pyrene | | 330U | | 330U | | 330U | | 330U |
| Benzoic Acid | | 1,600U | | 1,600U | | 1,600U | | 1,600U |
| Benzo(g,h,i)Perylene | | 330U | | 330U | | 330U | | 330U |
| Benzyl alcohol | | 330U | | 330U | | 330U | | 330U |
| 4-Bromophenylphenyl ether | | 330U | | 330U | | 330U | | 330U |
| Butylbenzylphthalate | | 330U | | 330U | | 330U | | 330U |
| di-n-Butyl phthalate | | 330U | | 330U | | 330U | | 330U |
| Carbazole | | 330U | | 330U | | 330U | | 330U |
| 4-Chloroaniline | | 330U | | 330U | | 330U | | 330U |
| bis(2-Chloroethoxy)Methane | | 330U | | 330U | | 330U | | 330U |
| bis(2-Chloroethyl)Ether | | 330U | | 330U | | 330U | | 330U |
| bis(2-Chloroisopropyl)Ether | | 330U | | 330U | | 330U | | 330U |
| 4-Chloro-3-Methylphenol | | 1,800 | | 2,000 | | 1,800 | | 1,800 |
| 2-Chloronaphthalene | | 330U | | 330U | | 330U | | 330U |
| 2-Chlorophenol | | 2,000 | | 2,000 | | 1,700 | | 1,800 |
| 4-Chlorophenylphenyl ether | | 330U | | 330U | | 330U | | 330U |
| Chrysene | | 330U | | 330U | | 330U | | 330U |
| Dibenz(a,h)Anthracene | | 330U | | 330U | | 330U | | 330U |
| Dibenzofuran | | 330U | | 330U | | 330U | | 330U |
| 1,2-Dichlorobenzene | | 330U | | 330U | | 330U | | 330U |
| 1,3-Dichlorobenzene | | 330U | | 330U | | 330U | | 330U |
| 1,4-Dichlorobenzene | | 1,200 | | 1,300 | | 1,000 | | 1,200 |
| 3,3'-Dichlorobenzidine | | 330U | | 330U | | 330U | | 330U |
| 2,4-Dichlorophenol | | 330U | | 330U | | 330U | | 330U |
| Diethylphthalate | | 330U | | 330U | | 330U | | 330U |
| 2,4-Dimethylphenol | | 330U | | 330U | | 330U | | 330U |
| Dimethyl Phthalate | | 330U | | 330U | | 330U | | 330U |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
TPH - Total petroleum hydrocarbons

MS - Matrix Spike
MSD - Matrix Spike Duplicate
ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

Table K.11

Analytical Results of Matrix Spike/Matrix Spike Duplicate Soil Samples at Site 21

Minnesota Air National Guard Base

Duluth, Minnesota

| Location No.: 021-018 BH-10-0-10.5 - MS | | 021-018 BH-10-0-10.5 - MSD | | 021-025 BH-14-0-14.5 - MS | | 021-025 BH-14-0-14.5 - MSD | |
|---|--------|----------------------------|-------|---------------------------|-------|----------------------------|-------|
| Sample Date: 7/14/94 | | 7/14/94 | | 7/12/94 | | 7/12/94 | |
| Lab Sample No.: 9407567-15 | | 9407567-16 | | 9407405-11 | | 9407443-12 | |
| SVOCs (ug/kg) | Matrix | Soil | Soil | Soil | Soil | Soil | Soil |
| 4,6-Dinitro-2-Methylphenol | | 800U | 800U | 800U | 800U | 800U | 800U |
| 2,4-Dinitrophenol | | 800U | 800U | 800U | 800U | 800U | 800U |
| 2,4-Dinitrotoluene | | 1,100 | 1,200 | 1,200 | 1,100 | 1,100 | 1,100 |
| 2,6-Dinitrotoluene | | 330U | 330U | 330U | 330U | 330U | 330U |
| 1,2-Diphenylhydrazine | | 330U | 330U | 330U | 330U | 330U | 330U |
| bis (2-Ethylhexyl) Phthalate | | 330U | 330U | 330U | 330U | 330U | 330U |
| Fluoranthene | | 330U | 330U | 330U | 330U | 330U | 330U |
| Fluorene | | 330U | 330U | 330U | 330U | 330U | 330U |
| Hexachlorobenzene | | 330U | 330U | 330U | 330U | 330U | 330U |
| Hexachlorobutadiene | | 330U | 330U | 330U | 330U | 330U | 330U |
| Hexachloroethane | | 330U | 330U | 330U | 330U | 330U | 330U |
| Hexachlorocyclopentadiene | | 330U | 330U | 330U | 330U | 330U | 330U |
| Indeno (1,2,3-cd) Pyrene | | 330U | 330U | 330U | 330U | 330U | 330U |
| Isophorone | | 330U | 330U | 330U | 330U | 330U | 330U |
| 2-Methylnaphthalene | | 330U | 330U | 330U | 330U | 330U | 330U |
| 2-Methylphenol | | 330U | 330U | 330U | 330U | 330U | 330U |
| 4-Methylphenol | | 330U | 330U | 330U | 330U | 330U | 330U |
| Naphthalene | | 330U | 330U | 330U | 330U | 330U | 330U |
| 2-Nitroaniline | | 800U | 800U | 800U | 800U | 800U | 800U |
| 3-Nitroaniline | | 800U | 800U | 800U | 800U | 800U | 800U |
| 4-Nitroaniline | | 800U | 800U | 800U | 800U | 800U | 800U |
| Nitrobenzene | | 330U | 330U | 330U | 330U | 330U | 330U |
| 2-Nitrophenol | | 330U | 330U | 330U | 330U | 330U | 330U |
| 4-Nitrophenol | | 1,100 | 1,200 | 1,200 | 1,100 | 1,100 | 1,100 |
| N-Nitrosodiphenylamine (1) | | 330U | 330U | 330U | 330U | 330U | 330U |
| N-Nitroso-Di-n-Propylamine | | 1,200 | 1,300 | 1,300 | 1,200 | 1,200 | 1,200 |
| Di-n-Octyl Phthalate | | 330U | 330U | 330U | 330U | 330U | 330U |
| Pentachlorophenol | | 850 | 1,000 | 1,000 | 1,500 | 1,200 | 1,200 |
| Phenanthrene | | 330U | 330U | 330U | 330U | 330U | 330U |
| Phenol | | 2,000 | 2,200 | 1,800 | 2,000 | 2,000 | 2,000 |
| Pyrene | | 1,600 | 1,700 | 1,400 | 1,400 | 1,400 | 1,400 |
| Pyridine | | 330U | 330U | 330U | 330U | 330U | 330U |
| 1,2,4-Trichlorobenzene | | 1,400 | 1,300 | 1,100 | 1,100 | 1,200 | 1,200 |
| 2,4,5-Trichlorophenol | | 800U | 800U | 800U | 800U | 800U | 800U |
| 2,4,6-Trichlorophenol | | 330U | 330U | 330U | 330U | 330U | 330U |
| TPH (mg/kg) | | 15 | 15 | 420 | 410 | 410 | 410 |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
TPH - Total petroleum hydrocarbons

MS - Matrix Spike
MSD - Matrix Spike Duplicate
ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

Table K.11
Analytical Results of Matrix Spike/Matrix Spike Duplicate Soil Samples at Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: Sample Date: Lab Sample No.: | 021-018 BH-10.0-10.5 - MS | | 021-018 BH-10.0-10.5 - MSD | | 021-025 BH-14.0-14.5 - MS | | 021-025 BH-14.0-14.5 - MSD | |
|--|---------------------------|------------|----------------------------|------------|---------------------------|------------|----------------------------|------------|
| | 7/14/94 | 9407567-15 | 7/14/94 | 9407567-16 | 7/12/94 | 9407405-11 | 7/12/94 | 9407443-12 |
| | Matrix | Soil | Matrix | Soil | Matrix | Soil | Matrix | Soil |
| Pesticides/PCBs (ug/kg) | | | | | | | | |
| a-BHC | | 0.67U | | 0.67U | | 0.67U | | 0.67U |
| b-BHC | | 1.7U | | 1.7U | | 1.7U | | 1.7U |
| d-BHC | | 1.7U | | 1.7U | | 1.7U | | 1.7U |
| g-BHC | | 16 | | 17 | | 16 | | 16 |
| Heptachlor | | 17 | | 17 | | 17 | | 17 |
| Aldrin | | 15 | | 16 | | 16 | | 15 |
| Heptachlor Epoxide | | 1.7U | | 1.7U | | 1.7U | | 1.7U |
| Endosulfan I | | 1.7U | | 1.7U | | 1.7U | | 1.7U |
| Dieldrin | | 35 | | 36 | | 35 | | 35 |
| Endrin | | 39 | | 40 | | 37 | | 38 |
| Endosulfan II | | 1.0U | | 1.0U | | 1.0U | | 1.0U |
| 4,4'-DDT | | 30 | | 32 | | 33 | | 34 |
| Endrin Aldehyde | | 3.3U | | 3.3U | | 3.3U | | 3.3U |
| Methoxychlor | | 1.7U | | 1.7U | | 1.7U | | 1.7U |
| a-Chlordane | | 0.33U | | 0.33U | | 0.33U | | 0.33U |
| g-Chlordane | | 1.7U | | 1.7U | | 1.7U | | 1.7U |
| 4,4'-DDE | | 0.67U | | 0.67U | | 0.67U | | 0.67U |
| 4,4'-DDD | | 3.3U | | 3.3U | | 3.3U | | 3.3U |
| Endosulfan Sulfate | | 3.3U | | 3.3U | | 3.3U | | 3.3U |
| Endrin Ketone | | 3.3U | | 3.3U | | 3.3U | | 3.3U |
| Toxaphene | | 33U | | 33U | | 33U | | 33U |
| Chlordane (technical) | | 1.7U | | 1.7U | | 1.7U | | 1.7U |

U - Indicates compound analyzed for but not detected.
PCBs - Polychlorinated biphenyls

MS - Matrix Spike
MSD - Matrix Spike Duplicate
ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

Table K.11
Analytical Results of Matrix Spike/Matrix Spike Duplicate Soil Samples at Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: | 021-018 BH-10.0-10.5 - MS | 021-018 BH-10.0-10.5 - MSD | 021-025 BH-14.0-14.5 - MS | 021-025 BH-14.0-14.5 - MSD |
|-----------------------|---------------------------|----------------------------|---------------------------|----------------------------|
| Sample Date: | 7/14/94 | 7/14/94 | 7/12/94 | 7/12/94 |
| Lab Sample No.: | 9407567-15 | 9407567-16 | 9407405-11 | 9407443-12 |
| Matrix | Soil | Soil | Soil | Soil |
| PCB-1016 | 17U | 17U | 17U | 17U |
| PCB-1221 | 17U | 17U | 17U | 17U |
| PCB-1232 | 17U | 17U | 17U | 17U |
| PCB-1242 | 17U | 17U | 17U | 17U |
| PCB-1248 | 17U | 17U | 17U | 17U |
| PCB-1254 | 17U | 17U | 17U | 17U |
| PCB-1260 | 17U | 17U | 17U | 17U |
| Metals (mg/kg) | | | | |
| Aluminum | 9,570 | 12,300 | 15,200 | 14,700 |
| Antimony | 5 | 5 | 1U | 5 |
| Arsenic | 4 | 4 | 22 | 22 |
| Beryllium | 92 | 88 | 95.2 | 94.5 |
| Cadmium | 95.0 | 94.2 | 93.2 | 92.2 |
| Chromium | 108 | 113 | 125 | 121 |
| Copper | 167 | 172 | 156 | 154 |
| Lead | 6.2 | 6.7 | 7.4 | 7.1 |
| Mercury | 1.2 | 1.2 | 1.0 | 0.9 |
| Nickel | 112 | 116 | 121 | 117 |
| Selenium | 1.3 | 1.5 | 1.5 | 1.4 |
| Silver | 91 | 90 | 72.4 | 73.8 |
| Thallium | 0.4U | 0.4U | 4.6 | 4.7 |
| Zinc | 128 | 137 | 136 | 136 |

MS - Matrix Spike
MSD - Matrix Spike Duplicate
ug/kg - micrograms per kilogram
mg/kg - milligrams per kilogram

U - Indicates compound analyzed for but not detected.
PCBs - Polychlorinated biphenyls

Table K.12
Analytical Results of Matrix Spike/Matrix Spike Duplicate Sediment Samples Collected for Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: 021-004SD-MS | | 021-004SD-MSD | |
|----------------------------|--------|---------------|----------|
| Sample Date: 10/4/94 | | 10/4/94 | |
| Lab Sample No.: 9410146-06 | | 9410146-07 | |
| VOCs (ug/kg) | Matrix | Sediment | Sediment |
| Acetone | | 40 | 34 |
| Benzene | | 39 | 40 |
| Bromodichloromethane | | 5U | 5U |
| Bromoform | | 5U | 5U |
| Bromomethane | | 10U | 10U |
| 2-Butanone | | 20U | 20U |
| Carbon Disulfide | | 5U | 5U |
| Carbon Tetrachloride | | 5U | 5U |
| Chlorobenzene | | 28 | 29 |
| Chloroethane | | 10U | 10U |
| 2-Chloroethylvinylether | | 10U | 10U |
| Chloroform | | 5U | 5U |
| Chloromethane | | 10U | 10U |
| Dibromochloromethane | | 5U | 5U |
| 1,1-Dichloroethane | | 5U | 5U |
| 1,1-Dichloroethene | | 53 | 53 |
| 1,2-Dichloroethane | | 5U | 5U |
| total 1,2-Dichloroethene | | 5U | 5U |
| 1,2-Dichloropropane | | 5U | 5U |
| cis-1,3-Dichloropropene | | 5U | 5U |
| trans-1,3-Dichloropropene | | 5U | 5U |
| Ethylbenzene | | 5U | 5U |
| 2-Hexanone | | 10U | 10U |
| Methylene Chloride | | 13 | 16 |
| 4-Methyl-2-Pentanone | | 10U | 10U |
| Styrene | | 5U | 5U |
| 1,1,2,2-Tetrachloroethane | | 5U | 5U |
| Tetrachloroethene | | 5U | 5U |
| Toluene | | 40 | 40 |
| 1,1,1-Trichloroethane | | 5U | 5U |
| 1,1,2-Trichloroethane | | 5U | 5U |
| Trichloroethene | | 34 | 36 |
| Trichlorofluoromethane | | 5U | 5U |
| Vinyl Acetate | | 10U | 10U |
| Vinyl Chloride | | 10U | 10U |
| Xylenes (total) | | 7 | 5U |

U - Indicates compound analyzed for but not detected.
VOCs - Volatile organic compounds
SD - Sediment

MS - Matrix Spike
MSD - Matrix Spike Duplicate
ug/kg - micrograms per kilogram

Table K.12
Analytical Results of Matrix Spike/Matrix Spike Duplicate Sediment Samples Collected for Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs (ug/kg) | Location No.: | | 021-004SD-MS | | 021-004SD-MSD | |
|-----------------------------|---------------|----------|--------------|---------|---------------|------------|
| | Matrix | Sediment | Sample Date: | 10/4/94 | 10/4/94 | 9410146-07 |
| Acenaphthene | | 2,600 | | | 2,200 | |
| Acenaphthylene | | 330U | | | 330U | |
| Aniline | | 330U | | | 330U | |
| Anthracene | | 330U | | | 330U | |
| Benzo (a) Anthracene | | 330U | | | 330U | |
| Benzo (b) Fluoranthene | | 330U | | | 330U | |
| Benzo (k) Fluoranthene | | 330U | | | 330U | |
| Benzo (a) Pyrene | | 330U | | | 330U | |
| Benzoic Acid | | 1,600U | | | 1,600U | |
| Benzo(g,h,i)Perylene | | 330U | | | 330U | |
| Benzyl alcohol | | 330U | | | 330U | |
| 4-Bromophenylphenyl ether | | 330U | | | 330U | |
| Butylbenzylphthalate | | 330U | | | 330U | |
| di-n-Butyl phthalate | | 330U | | | 330U | |
| Carbazole | | 330U | | | 330U | |
| 4-Chloroaniline | | 330U | | | 330U | |
| bis(2-Chloroethoxy)Methane | | 330U | | | 330U | |
| bis(2-Chloroethyl)Ether | | 330U | | | 330U | |
| bis(2-Chloroisopropyl)Ether | | 330U | | | 330U | |
| 4-Chloro-3-Methylphenol | | 2,500 | | | 2,500 | |
| 2-Chloronaphthalene | | 330U | | | 330U | |
| 2-Chlorophenol | | 1,900 | | | 1,600 | |
| 4-Chlorophenylphenyl ether | | 330U | | | 330U | |
| Chrysene | | 330U | | | 330U | |
| Dibenz(a,h)Anthracene | | 330U | | | 330U | |
| Dibenzofuran | | 330U | | | 330U | |
| 1,2-Dichlorobenzene | | 330U | | | 330U | |
| 1,3-Dichlorobenzene | | 330U | | | 330U | |
| 1,4-Dichlorobenzene | | 1,300 | | | 960 | |
| 3,3'-Dichlorobenzidine | | 330U | | | 330U | |
| 2,4-Dichlorophenol | | 330U | | | 330U | |
| Diethylphthalate | | 330U | | | 330U | |
| 2,4-Dimethylphenol | | 330U | | | 330U | |
| Dimethyl Phthalate | | 330U | | | 330U | |

U - Indicates compound analyzed for but not detected.
SVOCs - Semivolatile organic compounds
SD - Sediment

MS - Matrix Spike
MSD - Matrix Spike Duplicate
ug/kg - micrograms per kilogram

Table K.12
Analytical Results of Matrix Spike/Matrix Spike Duplicate Sediment Samples Collected for Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Semi-volatile Organics | Location No.: 021-004SD-MS | | 021-004SD-MSD | |
|------------------------------|----------------------------|------------|---------------|------------|
| | Sample Date: | 10/4/94 | 10/4/94 | 10/4/94 |
| | Lab Sample No.: | 9410146-06 | 9410146-07 | 9410146-07 |
| | Matrix | Sediment | Sediment | Sediment |
| 4,6-Dinitro-2-Methylphenol | | 800U | | 800U |
| 2,4-Dinitrophenol | | 800U | | 800U |
| 2,4-Dinitrotoluene | | 1,500 | | 1,400 |
| 2,6-Dinitrotoluene | | 330U | | 330U |
| 1,2-Diphenylhydrazine | | 330U | | 330U |
| bis (2-Ethylhexyl) Phthalate | | 330U | | 330U |
| Fluoranthene | | 330U | | 330U |
| Fluorene | | 330U | | 330U |
| Hexachlorobenzene | | 330U | | 330U |
| Hexachlorobutadiene | | 330U | | 330U |
| Hexachloroethane | | 330U | | 330U |
| Hexachlorocyclopentadiene | | 330U | | 330U |
| Indeno (1,2,3-cd) Pyrene | | 330U | | 330U |
| Isophorone | | 330U | | 330U |
| 2-Methylnaphthalene | | 330U | | 330U |
| 2-Methylphenol | | 330U | | 330U |
| 4-Methylphenol | | 330U | | 330U |
| Naphthalene | | 330U | | 330U |
| 2-Nitroaniline | | 330U | | 330U |
| 3-Nitroaniline | | 800U | | 800U |
| 4-Nitroaniline | | 800U | | 800U |
| Nitrobenzene | | 330U | | 330U |
| 2-Nitrophenol | | 330U | | 330U |
| 4-Nitrophenol | | 2,400 | | 2,500 |
| N-Nitrosodiphenylamine (1) | | 330U | | 330U |
| N-Nitroso-Di-n-Propylamine | | 1,800 | | 1,400 |
| Di-n-Octyl Phthalate | | 330U | | 330U |
| Pentachlorophenol | | 1,200 | | 760J |
| Phenanthrene | | 330U | | 330U |
| Phenol | | 2,000 | | 1,800 |
| Pyrene | | 2,800 | | 2,600 |
| Pyridine | | 330U | | 330U |
| 1,2,4-Trichlorobenzene | | 1,400 | | 1,000 |
| 2,4,5-Trichlorophenol | | 800U | | 800U |
| 2,4,6-Trichlorophenol | | 330U | | 330U |

U - Indicates compound analyzed for but not detected.
SVOCs - Semi-volatile organic compounds
SD - Sediment

MS - Matrix Spike
MSD - Matrix Spike Duplicate
ug/kg - micrograms per kilogram

Table K.12

Analytical Results of Matrix Spike/Matrix Spike Duplicate Sediment Samples Collected for Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: 021-004SD-MSD | | 021-004SD-MSD | |
|-----------------------------|--------|---------------|----------|
| Sample Date: 10/4/94 | | 10/4/94 | |
| Lab Sample No.: 9410146-06 | | 9410146-07 | |
| TPH (mg/kg) | Matrix | Sediment | Sediment |
| | | 530 | 530 |
| Pesticides/PCBs (ug/kg) | | | |
| a-BHC | | 0.67U | 0.67U |
| b-BHC | | 1.7U | 1.7U |
| d-BHC | | 1.7U | 1.7U |
| g-BHC | | 16 | 16 |
| Heptachlor | | 19 | 41 |
| Aldrin | | 17 | 16 |
| Heptachlor Epoxide | | 1.7U | 1.7U |
| Endosulfan I | | 1.7U | 1.7U |
| Dieldrin | | 32 | 33 |
| Endrin | | 39 | 37 |
| Endosulfan II | | 1.0U | 1.0U |
| 4,4'-DDT | | 30 | 25 |
| Endrin Aldehyde | | 3.3U | 3.3U |
| Methoxychlor | | 1.7U | 1.7U |
| a-Chlordane | | 0.33U | 0.33U |
| g-Chlordane | | 1.7U | 1.7U |
| 4,4'-DDE | | 0.67U | 0.67U |
| 4,4'-DDD | | 3.3U | 3.3U |
| Endosulfan Sulfate | | 3.3U | 3.3U |
| Endrin Ketone | | 3.3U | 3.3U |
| Toxaphene | | 33U | 33U |
| Chlordane (technical) | | 1.7U | 1.7U |
| PCB-1016 | | 17U | 17U |
| PCB-1221 | | 17U | 17U |
| PCB-1232 | | 17U | 17U |
| PCB-1242 | | 17U | 17U |
| PCB-1248 | | 17U | 17U |
| PCB-1254 | | 17U | 17U |
| PCB-1260 | | 17U | 17U |

U - Indicates compound analyzed for but not detected.
TPH - Total petroleum hydrocarbons
PCBs - Polychlorinated biphenyls
SD - Sediment

MS - Matrix Spike
MSD - Matrix Spike Duplicate
mg/kg - milligrams per kilogram
ug/kg - micrograms per kilogram

Table K.12
Analytical Results of Matrix Spike/Matrix Spike Duplicate Sediment Samples Collected for Site 21
Minnesota Air National Guard Base
Duluth, Minnesota

| Location No.: | | 021-006SD - MS | | 021-006SD - MSD | |
|----------------|--------|----------------|--------|-----------------|------|
| Sample Date: | | 7/23/94 | | 7/14/94 | |
| Lab Sample No: | | 9407998-14 | | 9407998-15 | |
| Metals (mg/kg) | Matrix | Soil | Soil | Soil | Soil |
| Aluminum | | 9,580 | 10,600 | | |
| Antimony | | 5 | 5 | | |
| Arsenic | | 14 | 15 | | |
| Beryllium | | 94.2 | 96.0 | | |
| Cadmium | | 92.2 | 92.9 | | |
| Chromium | | 114 | 118 | | |
| Copper | | 128 | 130 | | |
| Lead | | 72 | 73 | | |
| Mercury | | 1.1 | 1.1 | | |
| Nickel | | 108 | 111 | | |
| Selenium | | 2.2 | 2.2 | | |
| Silver | | N/A | N/A | | |
| Thallium | | 5.2 | 5.1 | | |
| Zinc | | 140 | 145 | | |

U - Indicates compound analyzed for but not detected.
SD - Sediment

MS - Matrix Spike
MSD - Matrix Spike Duplicate
mg/kg - milligrams per kilogram

Table K.13
Analytical Results of Water QA/QC Samples
During the May 1995 Sampling Event
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs | Location No.: | 017-001RB | 017-002RB |
|-----------------------------|-----------------|------------|------------|
| | Sample Date: | 5/17/95 | 5/19/95 |
| | Lab Sample No.: | 9505673-01 | 9505766-01 |
| | Matrix: | Water | Water |
| Acenaphthene | | 5 U | 5 U |
| Acenaphthylene | | 5 U | 5 U |
| Aniline | | 5 U | 5 U |
| Anthracene | | 5 U | 5 U |
| Benzo(a)anthracene | | 5 U | 5 U |
| Benzo(b)fluoranthene | | 5 U | 5 U |
| Benzo(k)fluoranthene | | 5 U | 5 U |
| Benzo(a)pyrene | | 5 U | 5 U |
| Benzoic acid | | 25 U | 25 U |
| Benzo(g,h,i)perylene | | 5 U | 5 U |
| Benzyl alcohol | | 5 U | 5 U |
| 4-Bromophenylphenyl ether | | 5 U | 5 U |
| Butylbenzylphthalate | | 5 U | 5 U |
| Di-n-butyl phthalate | | 5 | 5 U |
| Carbazole | | 5 U | 5 U |
| 4-Chloroaniline | | 5 U | 5 U |
| Bis(2-chloroethoxy)methane | | 5 U | 5 U |
| Bis(2-chloroethyl)ether | | 5 U | 5 U |
| Bis(2-chloroisopropyl)ether | | 5 U | 5 U |
| 4-Chloro-3-methylphenol | | 5 U | 5 U |
| 2-Chloronaphthalene | | 5 U | 5 U |
| 2-Chlorophenol | | 5 U | 5 U |
| 4-chlorophenylphenyl ether | | 5 U | 5 U |
| Chrysene | | 5 U | 5 U |
| Dibenz(a,h)anthracene | | 5 U | 5 U |
| Dibenzofuran | | 5 U | 5 U |
| 1,3-Dichlorobenzene | | 5 U | 5 U |
| 1,4-Dichlorobenzene | | 5 U | 5 U |
| 3,3'-Dichlorobenzidine | | 5 U | 5 U |
| 2,4-Dichlorophenol | | 5 U | 5 U |
| Diethylphthalate | | 5 U | 5 U |
| 2,4-Dimethylphenol | | 5 U | 5 U |
| Dimethyl phthalate | | 5 U | 5 U |
| 4,6-Dinitro-2-methylphenol | | 25 U | 25 U |
| 2,4-Dinitrophenol | | 25 U | 25 U |
| 2,4-Dinitrotoluene | | 5 U | 5 U |
| 2,6-Dinitrotoluene | | 5 U | 5 U |
| 1,2-Diphenylhydrazine | | 5 U | 5 U |
| Bis(2-ethylhexyl)phthalate | | 5 U | 5 U |
| Fluoranthene | | 5 U | 5 U |
| Fluorene | | 5 U | 5 U |
| Hexachlorobenzene | | 5 U | 5 U |
| Hexachlorobutadiene | | 5 U | 5 U |
| Hexachloroethane | | 5 U | 5 U |
| Hexachlorocyclopentadiene | | 5 U | 5 U |
| Indeno(1,2,3-cd)pyrene | | 5 U | 5 U |
| Isophorone | | 5 U | 5 U |

Table K.13
Analytical Results of Water QA/QC Samples
During the May 1995 Sampling Event
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs | Location No.: | 017-001RB | 017-002RB |
|----------------------------|-----------------|------------|------------|
| | Sample Date: | 5/17/95 | 5/19/95 |
| | Lab Sample No.: | 9505673-01 | 9505766-01 |
| | Matrix: | Water | Water |
| 2-Methylnaphthalene | | 5 U | 5 U |
| 2-Methylphenol | | 5 U | 5 U |
| 4-Methylphenol | | 5 U | 5 U |
| Naphthalene | | 5 U | 5 U |
| 2-Nitroaniline | | 25 U | 25 U |
| 3-Nitroaniline | | 25 U | 25 U |
| 4-Nitroaniline | | 25 U | 25 U |
| Nitrobenzene | | 5 U | 5 U |
| 2-Nitrophenol | | 25 U | 25 U |
| 4-Nitrophenol | | 25 U | 25 U |
| N-Nitrosodiphenylamine (1) | | 5 U | 5 U |
| N-Nitroso-di-n-propylamine | | 5 U | 5 U |
| Di-n-octyl phthalate | | 5 U | 5 U |
| Pentachlorophenol | | 25 U | 25 U |
| Phenanthrene | | 5 U | 5 U |
| Phenol | | 5 U | 5 U |
| Pyrene | | 5 U | 5 U |
| Pyridine | | 5 U | 5 U |
| 1,2,4-Trichlorobenzene | | 5 U | 5 U |
| 2,4,5-Trichlorophenol | | 10 U | 10 U |
| 2,4,6Trichlorophenol | | 5 U | 5 U |
| Metals | Location No.: | 017-001RB | 017-002RB |
| | Sample Date: | 5/17/95 | 5/19/95 |
| | Lab Sample No.: | 9505673-01 | 9505766-01 |
| | Matrix: | Water | Water |
| Mercury, Total | | 0.0004 U | 0.0004 U |

Table K.14
Analytical Results of Soil QA/QC Matrix Spike/Matrix Spike Duplicate
Sediment Samples Collected for Site No. 17
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs | Location No.: | 017-032BH 1.5 - 2 MS | 017-032BH 1.5 - 2 MSD |
|-----------------------------|-----------------|----------------------|-----------------------|
| | Sample Date: | 5/19/95 | 5/19/95 |
| | Lab Sample No.: | 9505766-09 | 9505766-10 |
| | Matrix: | Soil | Soil |
| Acenaphthene | | 1,600 | 2,000 |
| Acenaphthylene | | 660 U | 660 U |
| Aniline | | 660 U | 660 U |
| Anthracene | | 660 U | 660 U |
| Benzo(a)anthracene | | 660 U | 810 |
| Benzo(b)fluoranthene | | 660 U | 760 |
| Benzo(k)fluoranthene | | 660 U | 660 U |
| Benzo(a)pyrene | | 660 U | 760 |
| Benzoic acid | | 3,200 U | 3,200 U |
| Benzo(g,h,i)perylene | | 660 U | 660 U |
| Benzyl alcohol | | 660 U | 660 U |
| 4-Bromophenylphenyl ether | | 660 U | 660 U |
| Butylbenzylphthalate | | 660 U | 660 U |
| Di-n-butyl phthalate | | 660 U | 660 U |
| Carbazole | | 660 U | 660 U |
| 4-Chloroaniline | | 660 U | 660 U |
| Bis(2-chloroethoxy)methane | | 660 U | 660 U |
| Bis(2-chloroethyl)ether | | 660 U | 660 U |
| Bis(2-chloroisopropyl)ether | | 660 U | 660 U |
| 4-Chloro-3-methylphenol | | 2,400 | 2,600 |
| 2-Chloronaphthalene | | 660 U | 660 U |
| 2-Chlorophenol | | 2,700 | 3,100 |
| 4-Chlorophenylphenyl ether | | 660 U | 660 U |
| Chrysene | | 660 U | 990 |
| Dibenz(a,h)anthracene | | 660 U | 660 U |
| Dibenzofuran | | 660 U | 660 U |
| 1,3-Dichlorobenzene | | 660 U | 660 U |
| 1,4-Dichlorobenzene | | 1,200 | 1,400 |
| 3,3'-Dichlorobenzidine | | 660 U | 660 U |
| 2,4-Dichlorophenol | | 660 U | 660 U |
| Diethylphthalate | | 660 U | 660 U |
| 2,4-Dimethylphenol | | 660 U | 660 U |
| Dimethyl phthalate | | 660 U | 660 U |
| 4,6-Dinitro-2-methylphenol | | 1,600 U | 1,600 U |
| 2,4-Dinitrophenol | | 1,600 U | 1,600 U |
| 2,4-Dinitrotoluene | | 1,200 | 1,300 |
| 2,6-Dinitrotoluene | | 660 U | 660 U |
| 1,2-Diphenylhydrazine | | 660 U | 660 U |
| Bis(2-ethylhexyl)phthalate | | 660 U | 660 U |
| Fluoranthene | | 680 | 1,200 |
| Fluorene | | 660 U | 660 U |
| Hexachlorobenzene | | 660 U | 660 U |
| Hexachlorobutadiene | | 660 U | 660 U |
| Hexachloroethane | | 660 U | 660 U |
| Hexachlorocyclopentadiene | | 660 U | 660 U |
| Indeno(1,2,3-cd)pyrene | | 660 U | 660 U |
| Isophorone | | 660 U | 660 U |

Table K.14
Analytical Results of Soil QA/QC Matrix Spike/Matrix Spike Duplicate
Sediment Samples Collected for Site No. 17
Minnesota Air National Guard Base
Duluth, Minnesota

| SVOCs | Location No.: | 017-032BH 1.5 - 2 MS | 017-032BH 1.5 - 2 MSD |
|----------------------------|-----------------|----------------------|-----------------------|
| | Sample Date: | 5/19/95 | 5/19/95 |
| | Lab Sample No.: | 9505766-09 | 9505766-10 |
| | Matrix: | Soil | Soil |
| 2-Methylnaphthalene | | 660 U | 660 U |
| 2-Methylphenol | | 660 U | 660 U |
| 4-Methylphenol | | 660 U | 660 U |
| Naphthalene | | 660 U | 660 U |
| 2-Nitroaniline | | 1,600 U | 1,600 U |
| 3-Nitroaniline | | 1,600 U | 1,600 U |
| 4-Nitroaniline | | 1,600 U | 1,600 U |
| Nitrobenzene | | 660 U | 660 U |
| 2-Nitrophenol | | 660 U | 660 U |
| 4-Nitrophenol | | 1,900 | 2,300 |
| N-Nitrosodiphenylamine (1) | | 660 U | 660 U |
| N-Nitroso-di-n-propylamine | | 1,400 | 1,600 |
| Di-n-octyl phthalate | | 660 U | 660 U |
| Pentachlorophenol | | 940 J | 2,100 |
| Phenanthrene | | 810 | 1,700 |
| Phenol | | 2,200 | 2,500 |
| Pyrene | | 3,200 | 4,600 |
| Pyridine | | 660 U | 660 U |
| 1,2,4-Trichlorobenzene | | 1,500 | 1,800 |
| 2,4,5-Trichlorophenol | | 1,600 U | 1,600 U |
| 2,4,6Trichlorophenol | | 660 U | 660 U |
| Metals | Location No.: | 017-032BH 1.5 - 2 MS | 017-032BH 1.5 - 2 MSD |
| | Sample Date: | 5/19/95 | 5/19/95 |
| | Lab Sample No.: | 9505766-09 | 9505766-10 |
| | Matrix: | Soil | Soil |
| Mercury, Total | | 4.0 | 4.5 |

APPENDIX L
FIELD LOG BOOK DATA

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SECTION L.1

INTRODUCTION

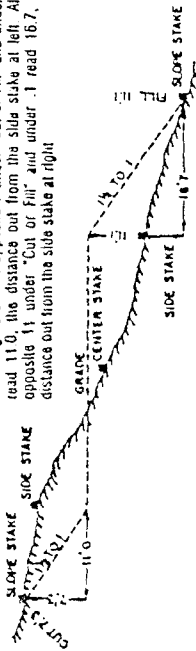
Field log books were attained by OpTech personnel for documentation of the field activities for the Addendum 1 RCRA Facility Investigation at Duluth Air National Guard Base, Duluth, Minnesota. The field work was conducted between 11 July 1994 and 27 July 1994. OpTech returned for recollection of soil, groundwater, and sediment samples between 04 October 1994 and 07 October 1994.

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DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING

Roadway of any Width. Side Slopes 1½ to 1.

In the figure below: opposite 7 under "Cut or Fill" and under 3 read 11.0, the distance out from the side stake at left. Also, opposite 11 under "Cut or Fill" and under 1 read 16.7, the distance out from the side stake at right.



| Cut or Fill | Distance out from Side or Shoulder Stake | | | | | | | | | | | | | | | | Cut or Fill |
|-------------|--|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | |
| 0 | 0.0 | 0.2 | 0.3 | 0.5 | 0.6 | 0.8 | 0.9 | 1.1 | 1.2 | 1.4 | 1.6 | 1.8 | 2.0 | 2.2 | 2.4 | 2.6 | 0 |
| 1 | 1.5 | 1.7 | 1.8 | 2.0 | 2.1 | 2.3 | 2.4 | 2.6 | 2.7 | 2.9 | 3.0 | 3.2 | 3.3 | 3.5 | 3.6 | 3.8 | 1 |
| 2 | 3.0 | 3.2 | 3.3 | 3.5 | 3.6 | 3.8 | 3.9 | 4.1 | 4.2 | 4.4 | 4.5 | 4.7 | 4.8 | 5.0 | 5.1 | 5.3 | 2 |
| 3 | 4.5 | 4.7 | 4.8 | 5.0 | 5.1 | 5.3 | 5.4 | 5.6 | 5.7 | 5.9 | 6.0 | 6.2 | 6.3 | 6.5 | 6.6 | 6.8 | 3 |
| 4 | 6.0 | 6.2 | 6.3 | 6.5 | 6.6 | 6.8 | 6.9 | 7.1 | 7.2 | 7.4 | 7.5 | 7.7 | 7.8 | 8.0 | 8.1 | 8.3 | 4 |
| 5 | 7.5 | 7.7 | 7.8 | 8.0 | 8.1 | 8.3 | 8.4 | 8.6 | 8.7 | 8.9 | 9.0 | 9.2 | 9.3 | 9.5 | 9.6 | 9.8 | 5 |
| 6 | 9.0 | 9.2 | 9.3 | 9.5 | 9.6 | 9.8 | 9.9 | 10.1 | 10.2 | 10.4 | 10.5 | 10.7 | 10.8 | 11.0 | 11.1 | 11.3 | 6 |
| 7 | 10.5 | 10.7 | 10.8 | 11.0 | 11.1 | 11.3 | 11.4 | 11.6 | 11.7 | 11.9 | 12.0 | 12.2 | 12.3 | 12.5 | 12.6 | 12.8 | 7 |
| 8 | 12.0 | 12.2 | 12.3 | 12.5 | 12.6 | 12.8 | 12.9 | 13.1 | 13.2 | 13.4 | 13.5 | 13.7 | 13.8 | 14.0 | 14.1 | 14.3 | 8 |
| 9 | 13.5 | 13.7 | 13.8 | 14.0 | 14.1 | 14.3 | 14.4 | 14.6 | 14.7 | 14.9 | 15.0 | 15.2 | 15.3 | 15.5 | 15.6 | 15.8 | 9 |
| 10 | 15.0 | 15.2 | 15.3 | 15.5 | 15.6 | 15.8 | 15.9 | 16.1 | 16.2 | 16.4 | 16.5 | 16.7 | 16.8 | 17.0 | 17.1 | 17.3 | 10 |
| 11 | 16.5 | 16.7 | 16.8 | 17.0 | 17.1 | 17.3 | 17.4 | 17.6 | 17.7 | 17.9 | 18.0 | 18.2 | 18.3 | 18.5 | 18.6 | 18.8 | 11 |
| 12 | 18.0 | 18.2 | 18.3 | 18.5 | 18.6 | 18.8 | 18.9 | 19.1 | 19.2 | 19.4 | 19.5 | 19.7 | 19.8 | 20.0 | 20.1 | 20.3 | 12 |
| 13 | 19.5 | 19.7 | 19.8 | 20.0 | 20.1 | 20.3 | 20.4 | 20.6 | 20.7 | 20.9 | 21.0 | 21.2 | 21.3 | 21.5 | 21.6 | 21.8 | 13 |
| 14 | 21.0 | 21.2 | 21.3 | 21.5 | 21.6 | 21.8 | 21.9 | 22.1 | 22.2 | 22.4 | 22.5 | 22.7 | 22.8 | 23.0 | 23.1 | 23.3 | 14 |
| 15 | 22.5 | 22.7 | 22.8 | 23.0 | 23.1 | 23.3 | 23.4 | 23.6 | 23.7 | 23.9 | 24.0 | 24.2 | 24.3 | 24.5 | 24.6 | 24.8 | 15 |
| 16 | 24.0 | 24.2 | 24.3 | 24.5 | 24.6 | 24.8 | 24.9 | 25.1 | 25.2 | 25.4 | 25.5 | 25.7 | 25.8 | 26.0 | 26.1 | 26.3 | 16 |
| 17 | 25.5 | 25.7 | 25.8 | 26.0 | 26.1 | 26.3 | 26.4 | 26.6 | 26.7 | 26.9 | 27.0 | 27.2 | 27.3 | 27.5 | 27.6 | 27.8 | 17 |
| 18 | 27.0 | 27.2 | 27.3 | 27.5 | 27.6 | 27.8 | 27.9 | 28.1 | 28.2 | 28.4 | 28.5 | 28.7 | 28.8 | 29.0 | 29.1 | 29.3 | 18 |
| 19 | 28.5 | 28.7 | 28.8 | 29.0 | 29.1 | 29.3 | 29.4 | 29.6 | 29.7 | 29.9 | 30.0 | 30.2 | 30.3 | 30.5 | 30.6 | 30.8 | 19 |
| 20 | 30.0 | 30.2 | 30.3 | 30.5 | 30.6 | 30.8 | 30.9 | 31.1 | 31.2 | 31.4 | 31.5 | 31.7 | 31.8 | 32.0 | 32.1 | 32.3 | 20 |
| 21 | 31.5 | 31.7 | 31.8 | 32.0 | 32.1 | 32.3 | 32.4 | 32.6 | 32.7 | 32.9 | 33.0 | 33.2 | 33.3 | 33.5 | 33.6 | 33.8 | 21 |
| 22 | 33.0 | 33.2 | 33.3 | 33.5 | 33.6 | 33.8 | 33.9 | 34.1 | 34.2 | 34.4 | 34.5 | 34.7 | 34.8 | 35.0 | 35.1 | 35.3 | 22 |
| 23 | 34.5 | 34.7 | 34.8 | 35.0 | 35.1 | 35.3 | 35.4 | 35.6 | 35.7 | 35.9 | 36.0 | 36.2 | 36.3 | 36.5 | 36.6 | 36.8 | 23 |
| 24 | 36.0 | 36.2 | 36.3 | 36.5 | 36.6 | 36.8 | 36.9 | 37.1 | 37.2 | 37.4 | 37.5 | 37.7 | 37.8 | 38.0 | 38.1 | 38.3 | 24 |
| 25 | 37.5 | 37.7 | 37.8 | 38.0 | 38.1 | 38.3 | 38.4 | 38.6 | 38.7 | 38.9 | 39.0 | 39.2 | 39.3 | 39.5 | 39.6 | 39.8 | 25 |
| 26 | 39.0 | 39.2 | 39.3 | 39.5 | 39.6 | 39.8 | 39.9 | 40.1 | 40.2 | 40.4 | 40.5 | 40.7 | 40.8 | 41.0 | 41.1 | 41.3 | 26 |
| 27 | 40.5 | 40.7 | 40.8 | 41.0 | 41.1 | 41.3 | 41.4 | 41.6 | 41.7 | 41.9 | 42.0 | 42.2 | 42.3 | 42.5 | 42.6 | 42.8 | 27 |
| 28 | 42.0 | 42.2 | 42.3 | 42.5 | 42.6 | 42.8 | 42.9 | 43.1 | 43.2 | 43.4 | 43.5 | 43.7 | 43.8 | 44.0 | 44.1 | 44.3 | 28 |
| 29 | 43.5 | 43.7 | 43.8 | 44.0 | 44.1 | 44.3 | 44.4 | 44.6 | 44.7 | 44.9 | 45.0 | 45.2 | 45.3 | 45.5 | 45.6 | 45.8 | 29 |
| 30 | 45.0 | 45.2 | 45.3 | 45.5 | 45.6 | 45.8 | 45.9 | 46.1 | 46.2 | 46.4 | 46.5 | 46.7 | 46.8 | 47.0 | 47.1 | 47.3 | 30 |
| 31 | 46.5 | 46.7 | 46.8 | 47.0 | 47.1 | 47.3 | 47.4 | 47.6 | 47.7 | 47.9 | 48.0 | 48.2 | 48.3 | 48.5 | 48.6 | 48.8 | 31 |
| 32 | 48.0 | 48.2 | 48.3 | 48.5 | 48.6 | 48.8 | 48.9 | 49.1 | 49.2 | 49.4 | 49.5 | 49.7 | 49.8 | 50.0 | 50.1 | 50.3 | 32 |
| 33 | 49.5 | 49.7 | 49.8 | 50.0 | 50.1 | 50.3 | 50.4 | 50.6 | 50.7 | 50.9 | 51.0 | 51.2 | 51.3 | 51.5 | 51.6 | 51.8 | 33 |
| 34 | 51.0 | 51.2 | 51.3 | 51.5 | 51.6 | 51.8 | 51.9 | 52.1 | 52.2 | 52.4 | 52.5 | 52.7 | 52.8 | 53.0 | 53.1 | 53.3 | 34 |
| 35 | 52.5 | 52.7 | 52.8 | 53.0 | 53.1 | 53.3 | 53.4 | 53.6 | 53.7 | 53.9 | 54.0 | 54.2 | 54.3 | 54.5 | 54.6 | 54.8 | 35 |
| 36 | 54.0 | 54.2 | 54.3 | 54.5 | 54.6 | 54.8 | 54.9 | 55.1 | 55.2 | 55.4 | 55.5 | 55.7 | 55.8 | 56.0 | 56.1 | 56.3 | 36 |
| 37 | 55.5 | 55.7 | 55.8 | 56.0 | 56.1 | 56.3 | 56.4 | 56.6 | 56.7 | 56.9 | 57.0 | 57.2 | 57.3 | 57.5 | 57.6 | 57.8 | 37 |
| 38 | 57.0 | 57.2 | 57.3 | 57.5 | 57.6 | 57.8 | 57.9 | 58.1 | 58.2 | 58.4 | 58.5 | 58.7 | 58.8 | 59.0 | 59.1 | 59.3 | 38 |
| 39 | 58.5 | 58.7 | 58.8 | 59.0 | 59.1 | 59.3 | 59.4 | 59.6 | 59.7 | 59.9 | 60.0 | 60.2 | 60.3 | 60.5 | 60.6 | 60.8 | 39 |
| 40 | 60.0 | 60.2 | 60.3 | 60.5 | 60.6 | 60.8 | 60.9 | 61.1 | 61.2 | 61.4 | 61.5 | 61.7 | 61.8 | 62.0 | 62.1 | 62.3 | 40 |



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Dundee, AF B, MD

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(301) 981-8844

Capt. Anderson motel

for breakfast

Arrived in Duluth 7/10/94

Joe Byrd

Ruben Torres

via Northwest Kathryn Pritchard

7/11/94

SPL Laboratory

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for breakfast

Arrived in Duluth 7/10/94

Joe Byrd

Ruben Torres

via Northwest Kathryn Pritchard

3

7/11/94
Kathryn Pritchard

OPT ECH / Joe Byrd

Ruben Torres

- met with Capt. Steven Wilburty

at Headquarters (Bldg. 25)

- gave him a copy of the

Addendum 1 to work plan

Dated June 1994

855 - met with Bruce Berg (ext. 244)

at civil engineering for

utilities clearance

900 - Kathryn Pritchard

OPT ECH / Joe Byrd

Ruben Torres

MNANG - Capt. Steven Wilburty

Base CE - Bruce Berg

at Site 21

- per Bruce Berg, need to

stake out borehole (soil borings)

and monitor well locations at

Site 21 and Site 17 due to

complex utilities (power, gas,

water, & electric). Notify him

when they have staked out.

He will call 1-800 number

for phone line clearance at Site 17.

Kathryn Pritchard

4

7/11/94

950 OPTIC-Kathryn Pickett
 MAND Capt. Steven Wabersky
 at Site 17 to walk over
 site.
 • need to move wooden
 crates located ^{near} southeast
 corner of pad for ore
 borehole location - will
 inform DRMO personnel,
 need to move drum
 (OPTTECH markings) by monitor
 well north of pad.
 • can not filled drums
 in middle of pad or
 "holes that are already
 on the pad.
 - went into the DRMO bldg
 to introduce OPTTECH
 to personnel, also
 Capt. Steven Wabersky
 retrieved key to gate at site
 16
 1015 OPTTECH Kathryn Pickett
 MAND Capt. Steven Wabersky
 at Site 16 to walk over
 Kathryn Pickett

5

7/11/94

1115 went to Merand for
 supplies
 to lunch
 1145 Kathryn Pickett
 Joe Byrd
 Ruben Torres
 on Site 21 to strike
 out soil bungs and set
 monitor well location.
 informed Bruce Berg
 at the Base Level Engineer
 of Site 21 being struck.
 - we finished striking
 the borehole
 - walked over ridge
 → may need to ^{adjust} proposed
 location of monitor well due
 to future road that is plan
 to go over that location.
 Went to Huntingdon E & E
 to pick up methanol, DI water
 (10 gallons), and 1.7" plastic cap,
 1 box 2.5" x 6" brass
 measures, signed to mail at 730
 to mean clean
 Kathryn Pickett
 + ^{supplies} ^{engineer}

6

7/11/94

14220 Returned to Hunger 163
 to pack Ford Explorer
 for next day.
 1700 Call SPN Lab. packed
 to Barbara - could not
 find trip blanked
 - the person that packed
 left the coolers aware that
 he had packed 4 packages
 containing 2 1/4 oz vial
 full of DI water and packed
 among the 150 40 ml vials
 packed.

1715

went to Target to purchase

supplies

1735

Went to airport to pick
 up John Morris (OPTech)

Kathy Pritchett

Tuesday

7/12/94

7

7050 Weather: Nice & bubbly
 Sunny, Wind 16-18 mph.
 705 John Morris
 OPTech & Kathryn Pritchett

Joe Boyd

Rudhen Torres

on Site 21 to unload
 Ford Explorer to set up
 decontaminated area

745

OPTech & John Morris

Kathryn Pritchett

at Huntington F4 E

HP located at 4444 Airway Blvd.

to observe steam cleaning

of drill rig and augers.

The drill rig and augers were

decontaminated by the following

procedure:

- steam cleaning with
- liquidized air and potable water,
- rinse with potable water.

805

Huntington finished

decontaminating drill rig

and augers.

Kathryn Pritchett

8

7/12/94

Go out to Hays 103
to pick up water - level
monitored and pick up
2 bags of ice.

OFTECH John Morris
Kathy Pickett

at Site 21
Huntingdon F & E

consulted with Capt.

Steven Wabrowicz about
if using area below loading
dock near Site 21 for
decontamination area for
argues -- he will check
with Base civil engineers.
Consulted with Bruce Berg
on utility
clearance at Site 21.
He has cleared the following.

- 021-021BH
- 021-022BH
- 021-023BH
- 021-024BH

Communication on site
to check for clearance.

Kathy Pickett

915

940

Huntingdon

Steve Stark
Jim Sargeant
John Morris

OFTECH { Joe Byrd
Ruelin Torres
Kathy Pickett

- Health & Safety meeting
at Site 21

- Health & Safety Officer
→ Joe Byrd

- Bruce Berg (Base CE)
cleared 021-025BH

W.L. 13.20' TOC

021-013BH

13.20' TOC

2.50' stick up

10170' BGS

Started Drilling

1015

021-025BH

Collected 0.5' - 2.5'

Blaze 25/115 75% Recovery

Collected Sample 021-025BH-1.5-2.0

2.5' x 6" UOA
Base SVOA
Sleeve TPH

GC-BTEX

Kathy Pickett

9

7/12/94

Steve Stark
Jim Sargeant
John Morris

OFTECH { Joe Byrd
Ruelin Torres
Kathy Pickett

- Health & Safety meeting
at Site 21

- Health & Safety Officer
→ Joe Byrd

- Bruce Berg (Base CE)
cleared 021-025BH

W.L. 13.20' TOC

021-013BH

13.20' TOC

2.50' stick up

10170' BGS

Started Drilling

1015

021-025BH

Collected 0.5' - 2.5'

Blaze 25/115 75% Recovery

Collected Sample 021-025BH-1.5-2.0

2.5' x 6" UOA
Base SVOA
Sleeve TPH

GC-BTEX

Kathy Pickett

10

7/12/94

PID 0 ppm

ATHS 13.5 ppm

13.5-2.5 Silt; little coarse gravel; granule to cobble size; dry; crumble into hand; roots; medium to dark; mfy yellowish brown

no odor

20.1 ppm PID reading

keelap on empty plastic

2 of top bag - ATHS - may be cause of high PID

readings on ATHS of

021-025BH-1.5-2.0

Collected 021-025BH

9-11 ~~7-11~~ infernal 80% Recovery 10.0-10.5

16 20 21 14

Collected Sample 021-025BH - 8.40

PID 3.6 ppm

ATHS 17.1 ppm

BC-BTEX

VOA

SVCA

metals

TPH

Pest

Kathy Pintered

9-11

no odor

1110

MS/

MSD

GC

BTEX

37816

Collected Sample 021-025BH-11.0-

VOA Pest

SVCA TPH

metals

PID

1.1 ppm

ATHS

15.6 ppm

13-13.5 Silt; trace to little clay;

little gravel; roots; dark

yellowish brown to medium

grey brown; granule to

cobble (gabbro & etc.)

wet; soft; better granular

Silt; little clay; little

to some gravel; granules

to cobble; rotter gabbro;

wet; brown; dark reddish

to yellowish brown

Kathy Pintered

7/12/94 11

Silt; trace - little clay;

little to some gravel;

granule to cobble size;

dark yellowish brown;

dry; moist at very end;

roots; crumble in hand.

Collected 021-025BH

13-15

40% Recovery

Collected Sample 021-025BH-14.0-

VOA Pest

SVCA TPH

metals

PID

1.1 ppm

ATHS

15.6 ppm

13-13.5 Silt; trace to little clay;

little gravel; roots; dark

yellowish brown to medium

grey brown; granule to

cobble (gabbro & etc.)

wet; soft; better granular

Silt; little clay; little

to some gravel; granules

to cobble; rotter gabbro;

wet; brown; dark reddish

to yellowish brown

Kathy Pintered

12

7/12/94

1155 Started 021-023BH
1140 Collected Sample 021-023BH
0.5 - 2.5' 1.5-2.0
Sample 021-023BH-10-1.5-1.5
Do not collect due
to poor recovery
will collect next hole

2.5" x 6"
Borehole
Sleeve
VDA
SUA
Post
netels
TPH
1210 1210 10% Recovery
1210 1210 10% Recovery

1200 Collected 10-12' Interval
1205 Collected Sample 021-023BH-11.0-11.5
2.5" x 6" GC-BTEX
VDA
SUA
Post
netels
TPH

1210 Duplicate 021-023BH-11.5-12.0
Some analyses Collected
22 21 27 17 95 % Recovery
47.3 ppm
366 ppm

10-12' Silt; trace - little clay;
little to gravel; granule
to cobble; dry - wet
11.0' no grain
11.5' ~ 11.0-11.5' fine;
Kathy Patrick

7/12/94 13

1215 Collected 13-15'
1220 Collected Sample 021-023BH-14.0-14.5'
2.5" x 6" VDA
SUA
Post
netels
TPH
GC-BTEX 14.0-14.5'

13-15' Silt and Sand, medium
to dark yellowish brown;
dry; crumbly in hand;
at 14.5' ~ 2" thick silt & little
clay with roots & gravel
Collected 0.5 - 2.5'
Next 021-023BH-
Collected sample 021-023BH-
1.5-2.0
GC-BTEX

1235 Collected 0.5 - 2.5'
Next 021-023BH-
Collected sample 021-023BH-
1.5-2.0
GC-BTEX

1240 Collected sample 021-023BH-
2.5" x 6" VDA
SUA
Post
netels
TPH
70% Recovery

1240 Collected sample 021-023BH-
2.5" x 6" VDA
SUA
Post
netels
TPH
70% Recovery

1240 Collected sample 021-023BH-
2.5" x 6" VDA
SUA
Post
netels
TPH
70% Recovery

1240 Collected sample 021-023BH-
2.5" x 6" VDA
SUA
Post
netels
TPH
70% Recovery

14

1330

7/12/94

6/1 Site 21 for lunch

→ ~~8:40~~ Huntington E & E

new left side for lunch?

→ called Steve Steve at

office to connect with him

about time to meet back on

side → left message → he

out of office.

1420

John Morris

Kathryn Patchett

Joe Byrd

Kueben

on Site 21

Huntington E & E used

Steve drove it Jim

on Site 21 already

Started 021-022BH

Collected 0.5 - 2.5'

1455 Collected Sample 021-022BH-1.5-2.0

2.5" VOA

SVOA

metals

Sleeve 5777

TPH.

Post

AT 11.5

led

GC - BTEX

PID Dppm

10.3 ppm

% Recovery

Kathryn Patchett

7/12/94 15

0.5-2.5

Silt

trace-

little gravel, granules to

collected; dry, moist at upper

interval; sample crumble in hand;

no clay, rotten gravel

col. blebs, clots, dark reddish-yellow

1515

Collected 5-7' Interval

Collected for GC screening

only (BTEX)

PID 21.3 ppm

AT 11.5 472 ppm

361025 55% Recovery

5-7' Silt

trace gravel, granules to

pebble; moist to wet;

medium to dark yellowish

brown; firm at lower end

of interval; gravel increases

40% downward; crumble

in hand with light pressure

Collected 10' 12' interval

Collected Sample 021-022BH-11.0-11.5

VOA

SVOA

metals

TPH

Post

GC - BTEX

Kathryn Patchett

16

7/12/94

PID

42.6

ppm

ATHS

86.6

ppm

12604541

15% Recovery

10-12

Silt

little

- some gravel

11

gravel to cobble

Oyl

little

no other

wet

firm

dark yellowish brown

11-12

Silt

little

to sand

no other

in crease

downward

little

no other

gravel

gravel to

cobble

minor

no other

wet

dark

yellowish

no other

brown

collected

13-15

at end

1555

collected

sample

021-022BH-

1600

collected

sample

021-022BH-

2.5"

VOA

TPT

GC-

60"

SVOA

Post

BTEX

Bore

ID

33

27

34

80

Recovery

Sieve

ID

33

27

34

80

Recovery

ATHS

51.1%

ppm

ATHS

117.1

ppm

Kathy

Pittlett

17

7/12/94

13-15

14.5

Silt

and sand

(44)

mud - clay

trace clay

little

- some gravel

linear

downward

dark yellowish

brown

Silt

some sand

some gravel

gravel

to cobble

Oyl

clay

dark yellowish brown

called SPL

lab to

order trip blanks

10

trip blanks

out of medium

cedars

Shipped (8)

out of

and samples

and samples

(1) duplicate

(1) trip

blanks

to SPL

via Federal Express

in Bill # 0176013986

Picked up John Morris

(OPTECH) from Site 21

Distance off site - John Morris

observed the distance

measuring the

postholes that were drilled today.

Cathy Pittlett

18

7/13/94

high 25.00

weather: Sunny, low 60.0;
slight wind; thunderstorm
predicted for afternoon

700 OPECH / Kathryn Pritchett
Reuben Toner

710 on Site 21 to set up
Steve Stene

Huntington / Jim Sargstad
on Site 21

715 OPECH / John Moore
Joe Byrd

OPECH / Joe Byrd (H50)
Reuben Toner

Huntington / Steve Stene
Jim Sargstad
Heath + Safety

mailing
Started 021-021BH
Collected 0.5 - 2.5
Antennal

740

741 Collected 46 89
75% Recovery
PID 1.7 ppm
ATH 3.6 ppm

Ruthy Pritchett

7/13/94 19

750 Collected Sample 021-021BH-
TPH 1.5
2.5" / VOA 1.5
X6" / SVOA 2.0
Brass sleeve

metal

0.5-2.5 Silt
trace clay / trace gravel; granule / to

Rebble size; dry; no cobbles;
bramble in hand; medium
addition - yellowish brown.

800 Collected 5-7' Antennal
36 11 12 70% Recovery

PID 1.9 ppm
ATH 5.9 ppm

805 Collected Sample 021-021BH-6.0-
2.5" / VOA TPH 6.5
X6" / SVOA Post
Brass sleeve metal may not send

5-7' Silt; trace little clay;
trace - little gravel; granule
to cobble; wet; fine;
medium reddish - yellowish
brown.

Ruthy Pritchett

24

15-17'

AD
600

1120

Silt

trace to little
sand; trace
pebble size
firm; medium reddish-
yellowish brown.

Drillers off site
to get fuel for
drill rig. Plan to
decontaminate augers
when they return to
site.

1155

OFTECH / John Morris
Ruben Torres
Kathryn Pitellett

at Hanger 103 to
chip GC samples to
Joe Byrd and set
up to collect equipment
waste from stainless-
steel split spoon.

1330

021-
R801

3 - 40 ml. VOA vials
1 L SVOA
1 L Post
1 L TPH
1 L metals
Kathryn
HCL
HNO₃
P-well

7/13/94

trace to little
sand; trace
pebble size
firm; medium reddish-
yellowish brown.

Drillers off site
to get fuel for
drill rig. Plan to
decontaminate augers
when they return to
site.

OFTECH / John Morris
Ruben Torres
Kathryn Pitellett

at Hanger 103 to
chip GC samples to
Joe Byrd and set
up to collect equipment
waste from stainless-
steel split spoon.

1330

021-
R801

3 - 40 ml. VOA vials
1 L SVOA
1 L Post
1 L TPH
1 L metals
Kathryn
HCL
HNO₃
P-well

7/13/94

25

OFTECH / Kathryn Pitellett
Ruben Torres
on Site 21

- Setting up for drilling
1435 Started 021-0203H
1445 Collected 0.5 - 2.5' interval
1500 34.58 25% Recovery
5689 PID 3.8 1.7 ppm
1505 AT115 5.3 ppm
1445 Collected Sample 021-0208H - 1.5 -
3.5" NVA TPH
2.5" SVOA Post GC - BTEX
X6.0" metals
Buss sleeve - Rechilled next to
soil boring due to
poor recovery

1515

1508H

Collected 5-7' interval
3533 5.6 2.1 75% Recovery
PID 1.8 ppm

1520

1508H

Collected Sample 021-0208H -
2.5" VOA TPH
X6" SVOA Post GC - BTEX
metals
Sleeve

Kathryn Pitellett

22

$$\frac{0.5}{1.0}$$

7/13/94

Silt trace clay; trace
gravel; pebble size;
moist - wet soft;
medium reddish - yellowish
brown

1.0-2.5

Silt : some sand;
Trace to little gravel;

22

Apod & granule lenses
(1-2" thick)

15-16

Silt w/ Sand, wet.
soft, little organics
(needs trees?) medium
reddish - yellowish brown
peat, loose: medium

6.5-7

Peat, loose, medium
 - trace silt, - dark grey brown.
 trace clay, wood fragments: wet
 Collected 9-11' interval
 12 20 24 32
 80% Recovery

531

Collected 9-11 interval
12202432, 80% recovery

87101

ATHS 7.0 per

Collected sample 021-02081-

V.A
V.V.P.
w/la²
J.P.H.
10.0
10.5
BTE ✓
Kath-Lindner

Business License

11-9

25

1555

22

Silt: trace gravel;
wet, firm; granule-
pebble size; sand &
granule lenses;
trace - little sand, trace
collected 13-15, clay
1018 1417 55 % Recovery

1.5 bpm
GID

4-TH 7-5-68

Collected Sample DZ1-020BH-

| U/A | TCH | 14.0-14.5 |
|------|------|-----------|
| SVOA | Pest | 14.0-14.5 |

Brook Green

Metals ~~GC-BTEX~~
~~DAD DAD~~ Did not collect
 GC-BTEX Sample
 → forget!

forget!

Sill and off little to some sand, trace to little gravel, granule to pebble size - soft, firm, wet; medium reddish-yellowish brown; trace clay.

Kathy Pubbete

28

1740

Shipped (1) equipment
separate (021-R801),
part (9) air surface
oil samples, and (1)
trip blank sent via
Federal express

Airbill # 0178013986

OPTech Kathryn Pritchett
Rueben Torwa

at Site 7827 to
take out soil boring
locations

1915

Left Site 17

17

Kathryn Pritchett

7/13/94

Thursday

7/14/94

29

Weather: cloudy; chance of rain
(30%); high in 60's.

700 OPTech Kathryn Pritchett
Rueben Torwa

(1) Site 21 to see if
Joe Byrd (OPTech) taking

John Davis (OPTech) to
airport

745 Steve Stare

Wilmington Jim Sargestad

OPTech Kathryn Pritchett

Joe Byrd

Rueben Torwa

at Health & Safety

755

Meeting Started 021-0198H

800

collected 0.5 - 2.0' 2.0'

11 66 32 50 % Recovery

805 Collected Sample 021-0198H-1.5-1.8

2.5"

SWA

TP11

Busa

metals

slower

PI 0 1.4 ppm

AT 1.4 ppm

Kathy Pritchett

GC-BTEX

32

7/14/94

Started 021-018BH
 Collected ~~0.5~~ - 2.5'
 30 50 40 40
 PID 1.5 ppm
 ATHS 3-10 ppm

915 Collected 021-018BH-1.5-2.0

2.5" sleeve
 VOA
 SVOA
 Metals

TPH
 Post

GC-BTEX

Collected 5-7'
 2 6 5 7 20 % Recovery
 PID 1.3 ppm

925

ATHS 2.0 ppm
 Collected 021-018BH-6.0-6.5

VOA
 SVOA
 Metals

TPH
 Post

GC-BTEX

Do not collect due to poor recovery

collected 9-11'

940

7 12 30 19 60 % Recovery
 PID 1.4 ppm

ATHS
 Collected 021-018BH-10.0-10.5

VOA
 SVOA
 Metals

TPH
 Post

GC-BTEX

945
 2.5" sleeve
 VOA
 SVOA
 Metals
 Collected 021-018BH-10.5-11.0
 Kathryn Pritchett

7/14/94

33

Sand and Silt, little gravel, pebbles size mostly granules, moist - dry, loose, soft, dark yellowish brown

0.5-2.2
 no other

2.2-2.5
 Silt, some sand, some gravel, cobble size, moist - dry, firm, dark yellowish brown

no other

9-11
 Silt, little - some gravel, cobble size, wet, firm, trace - little clay, dark yellowish brown

no other

13-14
 Silt and Sand, little - some gravel, cobble size, wet, soft, dark yellowish brown, trace clay

14-15

Silt, some sand, trace clay, some gravel, cobble size, wet, firm, dark yellowish brown

no other

K

Kathryn Pritchett

| | | | | | | |
|-----------|----------------------------|--|--|--|--|----|
| 3.1 | 7/14/94 | | | | | 35 |
| 1005 | Collected 13-15' | | | | | |
| | 13-20 21 85 % Recovery | | | | | |
| | PID 1.3 ppm | | | | | |
| | ATHS | | | | | |
| | Collected 021-018 BH-14.0- | | | | | |
| 1010 | VQA | | | | | |
| 2.5" X 6" | SVOA | | | | | |
| | metals | | | | | |
| | GC-BTEX | | | | | |
| 1015 | Collected Duplicate | | | | | |
| | 021-018 BH-14.5-15.0 | | | | | |
| 1030 | Started 021-016 BH | | | | | |
| 1035 | Collected 0.5-2.5' | | | | | |
| | 15 23 23 13 50 % Recovery | | | | | |
| | PID 1.2 ppm | | | | | |
| | ATHS 0.2 ppm | | | | | |
| 1040 | Collected 021-016 BH-1.5- | | | | | |
| 2.5" X 6" | VQA | | | | | |
| | SVOA | | | | | |
| | metals | | | | | |
| | GC-BTEX | | | | | |
| 1045 | Collected 5-7' | | | | | |
| | 75 5 10 80 % Recovery | | | | | |
| | PID 1.1 ppm | | | | | |
| | ATHS 1.5 ppm | | | | | |
| 1050 | Collected 021-016 BH- | | | | | |
| 2.5" X 6" | VQA | | | | | |
| | SVOA | | | | | |
| | metals | | | | | |
| | GC-BTEX | | | | | |

7/14/94 35

Silt, some sand, moist-dry, little gravel, pebble size loose dark silt, fine - little brown sand, trace clay, little gravel; pebble size; fine, moist - dry, dark yellowish brown Silt; trace clay, gravel, trace sand, little, gravel, pebble size, fine, moist - dry, decrease in sand downward; dark yellowish brown - medium yellowish reddish brown

Silt, trace clay; little to some gravel; cobble size fine wet, medium to thick yellowish brown Same as 9-11

Kathy Patrick

36

1120

7/14/94

Collected 9-11'

7116 22 23 70% Recovery

PID 18 ppm

ATHS 0.9 ppm

1125 Collected 021-016 BH - 10.5 - 13.5'

2.5" VOA
X6 SVOA
Buss meters

GC-BTEX

Collected 13-15'

12 13 20 21 55% Recovery

PID 0.9 ppm - did not collect

ATHS

Collected 021-016 BH - 14.5 - 14.5'

2.5" VOA
X6 SVOA
Buss meters

GC-BTEX

did not collect
forgot!

Drillers grouted 021-016 BH

to lunch

went to Hanger 103 to

pick up bottles for

equipment insert sample

KL

Kathy Fitzhugh

Collected

1400 021-RB01

7/14/94

37

equipment insert

3-10nd VOA TPH 12 110

12 SVOA Pest 12

12 11003 Metals

1430 Started 021-015 BH

Collected 1-11 0.5-2.5'

16 20 11 70% Recovery

PID 0 ppm

ATHS 0 ppm

1445 Collected Sample 021-015 BH - 1.5 - 2.0'

2.5" VOA
X6 SVOA
Buss metals

GC-BTEX

1450 Collected 5-7'

3 8 12 16 80% Recovery

PID 1.0 ppm

ATHS 0.1 ppm

1455 Collected 021-015 BH - 6.0 - 6.5'

2.5" VOA
X6 SVOA
Buss meters

GC-BTEX

1520 Collected 9-11'

50 62 76 59 75% Recovery

PID 0.9 ppm

ATHS 0 ppm

Kathy Fitzhugh

36

0.5-

2.5

no obs

5-7

no obs

9-11

no obs

13-14

7/14/94

Silt and Sand - some gravel, mostly granule size, pebble size, dark yellowish brown, moist-dry, loose

Silt, trace clay, firm, soft, wet;

medium reddish - yellowish brown, trace gravel, (granule size)

Silt, trace clay, sand gravel, cobble size, wet, very firm, medium reddish - yellowish brown

Same as 9-11

~~R~~

Kathy Patrick

7/14/94

39

1525
1580
2.5" X 6" Brass Sleeve 1535
VUA
VUA
Metals
Collected 021-015BH-TPH
Rest GC-BTEX

Collected 13-15P 14'
10 226 100% Recovery

PTD 0.6 ppm
Auger repair at 14' BGS
Collected 021-015BH-TPH
Rest GC-BTEX

1540
2.5" X 6" Brass Sleeve
VUA
VUA
Metals
ATHS 0.5 ppm
Drillers grouting Soil boring 021-015BH
Rest cement
30% bentonite slurry
mixed with potable water.

1555
Boehle 021-019BH already had been grouted.
Shipped (10) subsurface soil samples, (1) MSD, (1) Duplicate, (1) equipment rinse water, and (1) trip blank
via Federal Express
Air Bill # 0178014012
Kathy Patrick

1800

40

7/15/94

Weather: Sunny; 60's;
light wind

7-15
UPICH (Kathy R. Pitcock)
Lichen Tons

on site
Collected equipment
insecte

VOA 3- 1/2 and vial HCL

SVOA 1 L
Pest 1 L
TPH 1 L HCL

metals 1 L HNO3

840 Started 021-017 BH
842 Collected 0.5-2.5
6 22 209 50 % Recovery
PID 0 ppm

ATHS 0 ppm

845 Collected 021-017 BH - 1.5-2.0

2.5" UOA Pest

X6" 5 UOA TPH

metals

GC - BTEX

Slave
850 Collected 5-7'

6 18 22 37 80 % Recovery

PID 0 ppm

ATHS 0 ppm Kathy Pitcock

7/15/94

41

Silt; trace clay;
trace gravel; loose;
moist-dry; dark;
yellowish brown

0.5-
2.5

Silt; little - some
gravel; cobble size;
firm; trace clay;
moist-dry; stiff;
medium reddish -
yellowish brown

5-7

no
odor

Silt; little to some
sand; firm; wet;
little gravel (granule
size) medium reddish -
yellowish brown

9-10

no
odor

10-11
Some as 5-7, wet

13-14
Some as 10-11

14-15
Sand and Granule

trace gravel; pebble size;
wet; loose; soft; dark;
yellowish - gray brown

no
odor

15-?
Silt; trace clay; little
gravel; granule size; firm;
wet; medium reddish -
yellowish brown

Kathy Pitcock

92

400

2.5" X 6" Brass Sleeve

905

910

7/15/94

Collected 021-017BH -

VOA Post GC-BTEX
SVOA Post 6.0-6.5

Collected Duplicate
021-017BH - 6.5-7.0

Collected 9-11' 95% Recovery

12 20 26 35
PID 0 ppm

ATHS 0.4 ppm
Collected 021-017BH - 10.0

VOA Post 10.5
SVOA Post

Collected 13-15' GC-BTEX

14 21 20 23 85% Recovery

PID 0.1 ppm
ATHS 0.8 ppm

Collected 021-017BH - 14.0-14.5

VOA Post GC-BTEX
SVOA Post 14.5

Drillcore grouted
021-017BH

Kathy Fittell

7/15/94

Started 021-026mw

Collected 0.5-2.5' 40% Recovery

Collected BTEX - GC
021-026mw - 0.7-2.8

PID 0 ppm 2.0-2.5'

ATHS 4.0 ppm 2.5'

Collected 4-6' 10% Recovery

4 11 76. 10% Recovery
Collected 021-026mw - 5.0-5.5

GC-BTEX 5.5
Do not collect due to poor recovery

Collected 7-9' 40% Recovery

12 34 40% Recovery
Collected 021-026mw - 8.5-9.0

GC BTEX 8.5-9.0
PID 0 ppm

ATHS 0 ppm
Collected 10-12' 65% Recovery

3 6 9 12 65% Recovery
Collected 021-026mw - 11.0-11.5

GC BTEX 11.5
PID 0 ppm

ATHS 0 ppm
Kathy Fittell

4/4

0.5-2.5

no color

4/4 7-9

no color

10-12

7/15/94

Silt and sand;

some gravel; loose; dry; dark yellowish-grey; brown

Peat; some silt; medium - dark grey brown; wet

Silt; little gravel; pebble size; wet; soft; firm; medium reddish

to yellowish brown.

Silt - soft; same as

10-12 - cobble

size.

15.5-

17.5

Kathy Patterson

7/15/94

45

Collected 15.5 - 17.5'

5/11/85 100% Recovery

Collected 021-026 MW -

16.5 - 17.0

PID 0 ppm

A.T.H.S 0 ppm

- Started constructing

021-~~026~~ 026 MW

Hydrated ^{bimontate} pellets

PD

Finished constructing surface

completion of MW

- need to paint protective

casing either brown or

beige - informed Steve

Steele / Huntlyden.

Went back to Hager 103 to

- collect equipment invertebrate

021-RB03 (refer to page

46 of the field logbook)

Shipped (3) subsurface

soil samples; (1) duplicate,

and (1) equipment invertebrate.

via Fedex Express

Air Mail # 0178014034

Kathy Patterson

46

20

17
3 stick up

1-10' riser

1-10' screen

(2) 50 lbs buckets

Bentonite Pellets

WYB-Ben, Rec.

Enviro Plug

5/6 inch pellets

Sand: Red Flint

Filter Sand = 4

Gravels

50 lbs/bag

(12) bags

Sand
Pace

TD 17.40

19.40

Used - 6.25

ID

hollow-stem
w/ screen

Kathy Pitelett

7/15/94

021-026 MW

Construction

3-part

Protective

Casing

3' x 3' x 6' Cement
Pit

Cement

2" painted
steel

5' x 10' x 10'

steel

steel

5'

7'

2" painted
steel

5' x 10' x 10'

steel

0.01"

wire-

wrapped

screen

Bottom

cap

11"

hollow-stem

w/ screen

Kathy Pitelett

7/15/94

John Marie (301) 441-3700

18 July 1994 - 20 July 1994

47

48

Monday

7/18/94

Weather: Sunny; mid 60's

700

OPTECH / Kathryn Patchell

Ruben Torres

Joe Byrd, Jr.
at Hanger 103 to load

Food Explorer

Kathryn Patchell

at Site 21 to

meet Huntington

Ed E - Stew Stave &

Jim Savagehead

815

OPTECH / Kathryn Patchell

Ruben Torres

Joe Byrd

at Site 17 to setup

decontamination area.

Environment - 800-648-9355

Instrumentation

% Radisson Hotel

505 W. Superior St.

Duluth, MN 55802

(218) 727-8961

Houston 1-713-240-2277

Bobby Turner

Kathryn Patchell

930

Talked to

A Ray Anderson

Environmental Protnments

at Houston - ordered

a new filter

Called Karen S

Satterseid (SPL) to

check if samples

have been received

properly - no problems

→ only one water bottle

had broken during shipment

but they were able to

retrieve sample from

another bottle of the

set.

Called Norman

Lingard (KREM) →

left message that

we were finished with

the drilling at Site 21,

therefore, they can begin

surveying anytime. Also

left hotel number for

contacting me.

Kathryn Patchell

7/18/94 49

50
 950
 7/10/94
 Called Beth Gaway
 at (612) 297-8376
 (MPLA) → left message
 or phone number to
 Radisson Hotel →
 Will try her again today.
 955
 Huntington E & E
 arrived at Hanger 103
 to decontaminate drill
 rig North of Hanger 103
 Huntington E & E
 Steve Stark
 Jim Sargeant on Site 17
 1045
 Huntington
 Jim Sargeant
 Steve Stark
 Jim Sargeant
 Ruben Tones
 Kathryn Pickett
 → attended Safety
 meeting given by
 Ruben Tones
 Started 017-016BH
 Collected 0.5-2.5'
 2 20 26 26 75 % Recovery
 PID 0 ppm
 ATHS 0 ppm
 Kathryn Pickett

51
 7/10/94
 1055
 Ruben Tones (OPTech)
 went to Hanger 103
 to search for and
 brackets for split Apoor
 Collected 017-016BH -
 -1.5-2.5' 2.0
 2.5"
 6" Bore
 13.125" Sleeve
 SVOA
 TPH
 Collected 4-6'
 22 35 80 % Recovery
 PID 0 ppm
 ATHS 0 ppm
 Collected 017-016BH -
 5.0-5.5
 2.5" x
 6" Bore
 13.125" Sleeve
 SVOA
 TPH
 Collected 8-10'
 2 4 9 15 75 % Recovery
 PID 0 ppm
 ATHS 0 ppm
 Collected 017-016BH -
 9.0-9.5
 2.5" x
 6" Bore
 13.125" Sleeve
 SVOA
 TPH
 Collected
 Kathryn Pickett

52

7/13/94

0.5 - 1.0
minst-dry, little clay, trace - little gravel, pebbles, rgt, roots, firm, medium - dark yellowish brown
Silt, vent little
Silt, some sand
Coarse; medium gray brown, moist clay
Sand and silt; some granule, loose; medium - dark gray brown, moist-dry, coal fragments
Best
gray brown, moist, wood fragments; some
Silt, soft
Sand and silt; little
- 10 some granule, soft, firm, wet, medium, gray brown

Kathy Pritchard

53

7/14/94

1135 Started 017-015BH
1140 Collected 0.5-2.5', 2.10 60 24% Recovery 71.5%
PI 0 0 ppm
ATHS 0 ppm
1145 Collected 017-015BH - 7.5-2.5' 2.0-2.5' GC-BTEX
2.5" x 6" SUSA
Brook Grove TPH
1155 Collected 4-6', 3 3 3 5 45% Recovery
PI 0 0 ppm
ATHS 0 ppm
1200 Collected 017-015BH 2.5" x 6" 5.5-6.0 5.0-5.5' GC-BTEX
Brook Grove
1210 Collected 8-10', 10 13 11 6 35% Recovery
PI 0 0 ppm
ATHS 0 ppm
1215 Collected 017-015BH - 2.5" x 6" 9.5-10.0
SUSA
TPH GC-BTEX
Kathy Pritchard

54

0.5-2.5

no sand

4-6

no sand

8-10

no sand

7/18/94

Silt and Sand; some gravel; cobble size; moist - clay; loose; some yellowish-grey; brown

Peat; moist; some firm; soft; dark grey; brown; some silt; little clay

Silt; some sand; wet; firm; soft; some gravel; cobble size; some yellowish brown

7/18/94

55

Started 017-013BH

Collected 0.5-2.5

3 6 6 7 25% Recovery

PI.D

ppm

ATHS

ppm

Collected 017-013BH

SVOA

TPH

GC-BTEX

Did not collect due to poor recovery

Collected 5-10-6'

Thunderstorm - stopped

WTR

Collected 017-013BH -

SVOA

TPH

GC-BTEX

5.0-5.5

80% Recovery

3 5 5 7

PI.D

ATHS

ppm

ppm

Collected 5-10' multiplication due to poor recovery

16 13 13 17

Collected 017-013BH

- 9.0-9.5

GC-BTEX

SVOA

TPH

Kathryn Pittslett

Kathryn Pittslett

56

7/18/94

4-6' Peat; medium-dark
gray brown; some silt;
wood fragments; moist-dry;
soft; firm

8-10

Silt;
sand; little to some
little gravel;
cobbles; wet; firm;
soft; dark yellowish
brown

1420

Collected 0.5-2.5'
next to soil boring 017-013
#11

25 87

90% Recovery

1430

Collected 017-013B11-
1.5-2.0

SUVA
TPH

GC-BTEX

Silt; roots; little
sand; little gravel;
cobbles; moist-dry;
dark yellowish brown

0.5-

2.5

7/18/94

5-1

11420 1-800-337-0435
~~Samples~~ Sample Bottles

TPH 4 1 L amber HCL
metals 2 1 L amber HNO₃
pest 2 1 L
VOC 4/5-4/8 3-40 mL HCL
8 Trip Blank
4 1 L amber
SVOC

For groundwater samples Site 21

Need:

TPH 5 1 L amber & clear HCL
SUOC 5 1 L amber
VOC 5 (3) 40-mL
pest 5 1 L clear
metals 5 1 L Poly HNO₃
QA/QC (1) Field blank (2) equipment
reagents & (3) duplicates
TPH 4 1 L amber & clear HCL
SUOC 4 1 L amber
VOC 4 (3) 40 mL
pest 4 1 L clear
metals 4 1 L Poly HNO₃

Kathryn Pritchard

58

7/15/94

Site 17

QA/QC

2 VOC

TPH

1 L amber

1 L amber or clear HCL

Site 18

QA/QC

VOC

metals

(5) 40-ml vials

1 L Poly HNO₃

Order from Lake.

1 L clear HCL

1 L Poly HNO₃

1 L clear

1 L amber

1600 Called Kaper Dattarseild

(SPL Lab) ordered the

required bottles listed

above and (6) coolers

by Wednesday

at Federal Express

office at Dulute airport.

1630

Called Hazco

Need P.O.

Contract # 439722

Ordered OVM 5808

PID and water guard

1260 (wk @ 85/dm)

#150 cleaning fee if keep for ≥ 4 days

Kathryn Pivett

59

7/18/94

Collected ~~left~~

equipment rinseate

→ 017-RB01

SVOA

TPH

PID had stopped

working properly due to

getting well in a sudden

thunderstorm at

approximately 1400.

PID is drying out and

is running to drive

out the moisture trapped

in PID. Ordered

PID from Hazco

for tomorrow delivery

to assure we have

a PID that operates

properly.

Shipped (8) subsurface

soil samples, (4) MS/MSO,

and (4) equipment rinseate

for Site 17 via Federal

Express overnight delivery.

in bill #

Kathryn Pivett

1615

1650

1730

600 Tuesday 7/19/94

weather: showers, mid 60's/
thunderstorms predicted

700 Joe Byrd, Jr.

OPTECH Ruben Torres

Kathryn Pitchford

at Hanger 103 to load

Ford Explorer

Called Beth Grunberg Casway-

(MPCA) - left message

- she had called last

night at the hotel

and left message to

call her at 700 this

morning.

Ruben Torres

OPTECH Kathryn Pitchford

at Site 17

Humboldt Stone Store

Jim Sargent

also on Site 17

750 Safety meeting -

- all attended

810 Started 017-014BH

~~17~~

Kathryn Pitchford

7/19/94 601

Collected 015-2.5'

37 37 37 65% Recovery

PID 0 ppm

ATHS 0 ppm

815 Collected 017-014BH -

2.5" X 6" SVOA

2.5" X 6" TP11

820 Collected 4-6'

2 3 4 6 85% Recovery

PID 0 ppm

ATHS 0 ppm

825 Collected 017-014BH -

2.5" X 6" SVOA

2.5" X 6" TP11

830 Collected Duplicate

017-014BH - 5.5-6.0

Collected 8-10'

2 5 13 60% Recovery

PID 0 ppm

ATHS 0 ppm

840 Collected 017-014BH

2.5" X 6" SVOA

2.5" X 6" TP11

~~17~~

Kathryn Pitchford

62

0.5-
2.5Silt

clay, trace - little
cobble, little gravel,
loose, size mixed-dry,
dark yellowish

4-6

Peat

- gray brown
silt, little - some
moist, trace clay,
medium to dark, soft,

8-10'

Silt

gray brown
trace clay,
some gravel, cobble
size, little to some
sand, wet, firm,
dark, yellowish brown

7/19/94

trace - little
little gravel,
size mixed-dry,
dark yellowish

- gray brown
silt, little - some
moist, trace clay,
medium to dark, soft,

gray brown
trace clay,
some gravel, cobble
size, little to some
sand, wet, firm,
dark, yellowish brown

Kathy Patchett

63

7/19/94

Started 017-012 BH-

Collected 0.5-2.5

Σ 24 14 g 40% Recovery

Collected 017-012 BH-

- 210-2.5

GC-BTEX

PII 0 ppm

ATHS 0 ppm

Collected 4-6'

Σ 7 11 12 70 % Recovery

PII 0 ppm

ATHS 0 ppm

Collected 017-012 BH

- 5.0-5.5

GC-BTEX

Collected 8-10'

Σ 24 25 55 35 % Recovery 70%

PII 0 ppm

ATHS 0 ppm

Collected 017-012 BH-

9.0-4.5

GC-BTEX

K

Kathy Patchett

64

7/19/94

Silt; trace clay;
little sand; little
gravel; pebble size;
moist - dry; loose;
roots.

4-5

Silt and Peat

medium grey-olive
brown; moist-wet;
soft; firm; wood fragments,
batter - some clay
(olive color)

5-6

Silt and Sand; little
gravel; pebble size;
trace clay; wet;
firm; soft; dark
yellowish-grey brown

8-10'

Sand and Gravel;
some silt; little gravel;
pebble size; trace clay;
loose; wet; dark

medium

yellowish brown
Silt; trace clay;
trace - little gravel;
gravel size; firm;
wet - moist; dark
yellowish brown.

10'-?

medium

Katharine Pittsford

7/19/94

65

Started 017-011BH
Collected 0.5-2.5
3 GPY 4
PIID 0 ppm
ATHS 0 ppm

1010

1015

Collected 017-011BH -
1.5-2.0
SVOA
TPH
Collected 4-6'
1336 Co. % Recovery
PIID 0 ppm
ATHS 0 ppm

1020

2.5" X
6" Bore

1020

Collected 017-011BH -
1.5-2.0
SVOA
TPH
Collected 4-6'
1336 Co. % Recovery
PIID 0 ppm
ATHS 0 ppm

1025

2.5" X
6" Bore

1035

Collected 017-011BH -
1.5-2.0
SVOA
TPH
Collected 4-6'
1336 Co. % Recovery
PIID 0 ppm
ATHS 0 ppm

Collected 017-011BH -
1.5-2.0
SVOA
TPH
Collected 4-6'
1336 Co. % Recovery
PIID 0 ppm
ATHS 0 ppm

Collected 017-011BH -
1.5-2.0
SVOA
TPH
Collected 4-6'
1336 Co. % Recovery
PIID 0 ppm
ATHS 0 ppm

Collected 017-011BH -
1.5-2.0
SVOA
TPH
Collected 4-6'
1336 Co. % Recovery
PIID 0 ppm
ATHS 0 ppm

Collected 017-011BH -
1.5-2.0
SVOA
TPH
Collected 4-6'
1336 Co. % Recovery
PIID 0 ppm
ATHS 0 ppm

Collected 017-011BH -
1.5-2.0
SVOA
TPH
Collected 4-6'
1336 Co. % Recovery
PIID 0 ppm
ATHS 0 ppm

Collected 017-011BH -
1.5-2.0
SVOA
TPH
Collected 4-6'
1336 Co. % Recovery
PIID 0 ppm
ATHS 0 ppm

Collected 017-011BH -
1.5-2.0
SVOA
TPH
Collected 4-6'
1336 Co. % Recovery
PIID 0 ppm
ATHS 0 ppm

Collected 017-011BH -
1.5-2.0
SVOA
TPH
Collected 4-6'
1336 Co. % Recovery
PIID 0 ppm
ATHS 0 ppm

Collected 017-011BH -
1.5-2.0
SVOA
TPH
Collected 4-6'
1336 Co. % Recovery
PIID 0 ppm
ATHS 0 ppm

Collected 017-011BH -
1.5-2.0
SVOA
TPH
Collected 4-6'
1336 Co. % Recovery
PIID 0 ppm
ATHS 0 ppm

Collected 017-011BH -
1.5-2.0
SVOA
TPH
Collected 4-6'
1336 Co. % Recovery
PIID 0 ppm
ATHS 0 ppm

Collected 017-011BH -
1.5-2.0
SVOA
TPH
Collected 4-6'
1336 Co. % Recovery
PIID 0 ppm
ATHS 0 ppm

Collected 017-011BH -
1.5-2.0
SVOA
TPH
Collected 4-6'
1336 Co. % Recovery
PIID 0 ppm
ATHS 0 ppm

۱۶۴

$$0.5\overline{6}$$

1.5-2.5

21-6

8-10

h b 1517 E.

Silt; trace - little gravel; fine. soft brown;
little sand; little clay; pebble
mud; mist clay;
yellowish

| | |
|---------------|--------|
| Silt and flat | medium |
| grey brown | soft |
| moat, trace | little |

| |
|---|
| Silt and Peat; little clay; trace gravel; moist-wet; soft; pebble size; medium gray - blue; brown |
|---|

Silt : some sand.
little gravel, cobble
size : little clay.
wet : soft : dense
yellowish brown

Leathy Pritchard

E9 A5/61/E

67

1130-
1230
1235

lunch
Check with Bruce Berg
Base CE about utility
clearance.

1245
Bruce Berg at Site 17
cleared 017-010BH
4 017-01017BH

1320 Started 017-010BH
1325 Collected 0.5-2.5'
2410 6 40% Recovery
25

1330
2.5" x 6"
Bum
stone

1335 due to poor recovery.
collected 4-6
Σ 6 $\frac{100}{\%}$ to % Recovery

1340
PID 0 ppm
ATHS 0 ppm
Collected BF-010BH
(SVOA 1 -5.0-5
TPH PC-ATF)

1345
Collected 017-0103H -
Duplicate. 5.5-6.0
Koch Pisselott

68
1345
7/19/94

7/19/94

Collected 8-10
43 23 29 25 75 Recovery
PID 0 ppm
ATHS 0.3 ppm
Collected 0.7-0.10 BH -
SUA 1.0-9.5
TPH GC-BTEX

1350
7/19/94

1400

Collected 0.5-2.5
next to borehole
0 % Recovery

PID
ATHS

1405

Collected 0.7-0.10 BH -
SUA
TPH GC-BTEX

— Did not collect
due to perc recovery
— try to drive 0.2
before hitting refusal
→ tried 2 different
locations near 0.7-0.10 BH

Kathy Pinter

7/19/94

69

Silt and Peat

medium gray brown
to dark yellowish
brown; moist-wet;
fine, soft; little
clay; trace gravel;
gravel size

4-5

Silt; trace-little
clay; fine, soft;
little - some gravel; cobble
size; dark yellowish
brown; wet

5-6

Silt; trace-little
sand; little - some
gravel; cobble size;
wet; fine; dark
yellowish brown;
trace clay

Kathy Pinter

70

1415

1420

7/19/94

Started 017-017BH

Collected 0.5-2.5

6 14 14 10 75 % Recovery

PIID 0 ppm

ATHS 0.60 ppm

Collected 017-017BH

SVOA - 2.0-2.5

TPH GC-BTEX

Collected 4-6

24 2 6 100 % Recovery

PIID 0 ppm

ATHS 1.0 ppm

Collected D/7-017BH

SVOA - 5.0-5.5

TPH GC-BTEX

Collected 8-10 -

1 2 2 2 100 % Recovery

PIID 0 ppm

ATHS 0.5 ppm

Collected 017-017BH

SVOA - 9.0-9.5

TPH GC-BTEX

RP

Kathy Patchett

7/19/94

71

Silt: trace clay;

firm; moist-dry;

little gravel; cobble

size; dark yellowish

brown

Silt: little some

pebbles; little

coal fragments?

+ trace of trace clay;

moist-dry; firm;

dark yellowish;

brown; dark grey

brown fragments

Peat

dark grey brown; moist;

wood fragments; little

silt; trace clay;

firm; soft

Peat and Silt; trace

clay; light - dark

grey-olive brown; soft;

firm; wet; trace gravel;

pebble size

RP

Kathy Patchett

72
1500

7/19/94

Released drillers
from Site 17, Plan
to meet Steve Skel
at 700 at site 21
to develop 021-026
from Saugpothd
will meet us at
Site 17 at ~ 830

-900 to complete
drilling soil borings.
Soil borings, 017-018BH,
017-020BH, and 017-019BH
should be cleared by
tomorrow morning. An
Bruce Berg (Base CE)

Collected equipment
rinseate from stainless
steel split spoon
017-RB02

1615

SVOC

TPH

Shipped (11) subsurface
soil samples (2) duplicate
subsurface soil samples, (1)
MS/MSD; and (1) equipment
representative via Federal Express,
with 10:00 AM delivery

1715

Wednesday
700

Weather: Sunny; mid 60's
Kathryn Peitelott

OPTECH

Joe Byrd, Jr.
Ruben Torres
at Site 21 to
develop 021-026 MW.

715

Calibrated Hydac
PH/conductivity/Temperature
meter; Cambridge Model
910, Serial # 9402
Beta Technology, Inc.
PH 7.44
RempHect Buffer
Ondor

1000 mS/cm

YSI 3167

Lot 94E82701

PI D

0 ppm

WL:

7.92' TOC

T.D.

20.23' TOC

Volume = $(0.0408) (2')^2 (12.3)$

Vwell = 2 gallons

~~KP~~

Kathryn Peitelott

| Start | Temp. | pH | Cond. | Clarity |
|---------|--|--------|-------|-----------------|
| 7/20/94 | 021-026 miles | | | |
| 807 | 64.3 | 5.66 | 596 | cloudy |
| 812 | 62.8 | 5.94 | 640 | cloudy |
| 819 | 63.4 | 6.14 | 696 | cloudy |
| 823 | 65.4 | 6.32 | 764 | cloudy |
| 830 | 65.8 | 6.45 | 636 | cloudy |
| 835 | 65.2 | 6.69 | 570 | cloudy |
| 840 | 62.9 | 6.78 | 486 | cloudy |
| 843 | 55.7 | 6.38 | 635 | cloudy |
| 846 | 54.1 | 6.86 | 587 | cloudy |
| 855 | 55.2 | 7.01 | 714 | cloudy |
| 904 | 55.4 | 7.14 | 712 | cloudy |
| 907 | 55.4 | 7.13 | 870 | cloudy |
| 912 | 55.1 | 7.11 | 862 | slightly cloudy |
| 912 | 55.1 | 7.14 | 863 | slightly cloudy |
| Photo | Stopped balling - built dry | | | |
| 925 | W.L. | 17.39' | 70C | |
| 1005 | Arrived at Site 17 | | | |
| | for Byrd Jr. | | | |
| | Ruben Torres | | | |
| | Kathryn Perdomo | | | |
| | Steve Steer | | | |
| | John Sangerstad | | | |
| | attended safety meeting | | | |
| 1055 | no clearance or the remaining soil bagging - Bruce Berg called US West Phone Co. | | | |
| 1058 | Kathryn Perdomo | | | |

| Time | Notes |
|------|-------------------------|
| 1110 | Started 017-018BH |
| 1115 | Collected 0.5-2.5 |
| | 612 32 LL 70 % Recovery |
| | PID 0 ppm |
| | ATHS 1.0 ppm |
| 1120 | Collected 017-018BH |
| | <SVDA -1.5-2.0 |
| | <TPH GC-BTEX |
| 1125 | Collected 4-6' |
| | 23 57 90 % Recovery |
| | PID 0 ppm |
| | ATHS 0.9 ppm |
| 1130 | Collected 017-018BH |
| | <SVDA 5.0-5.5 |
| | <TPH GC-BTEX |
| 1135 | Collected duplicate |
| | 017-018BH - 5.5-6.0 |
| 1140 | Collected 8-10' |
| | 23 610 75 % Recovery |
| | PID 0 ppm |
| | ATHS 0.8 ppm |
| 1145 | Collected 017-018BH |
| | <SVDA 9.0-9.5 |
| | <TPH GC-BTEX |
| | Kathy Perdomo |

76

0.5-
1.0

7/20/94

Silt; roots;
sand; date
loose; date
brown;
Silt;
clay;
sand; some gravel;
cobble size; wet;
dark yellowish brown
Peat; fine-silt; soft;
moist; wet; wood
fragments;
- dark; grey brown;
trace-little clay
Silt and Peat - little

1.0-
2.5

Silt;
clay;
sand; some gravel;
cobble size; wet;
dark yellowish brown
Peat; fine-silt; soft;
moist; wet; wood
fragments;
- dark; grey brown;
trace-little clay
Silt and Peat - little

4-6

8-9

9-10

Kathy Pittsott

7/20/94

77

Started 017-019BH
Collected 1.0-3.0
% recovery

Collected 017-019BH

SVA

TPH

GC-BTEK

Soil Borings 017-

019BH and 017-020BH

have not been clean;

Break for lunch

US West at site near 17

to check/clear locate

main phone line from

Herrmann to Grand

Lapida

to lunch

Kathryn Pittsott

017-019BH

Reuben Torres

Steve Stark

Jim Sengstack

on site 17 to continue

drilling

Started 017-019BH

Kathy Pittsott

76

7/20/94

1330 Collected 0.5-2.5'

3 3 58 50 % Recovery

PI0 25.1 ppm

ATHS 0 ppm

1333 Collected 0.17-0.19 BH -

SVDA 1.0-2.5'

TPH GC-BTEX

1335 Collected 4-6'

2 3 7 10 % Recovery

PI1 0 ppm

ATHS 0 ppm

1340 Collected 0.17-0.19 BH -

SVDA 5.0-5.5'

TPH GC-BTEX

1350 Collected 8-10'

8 11 12 47 % Recovery

PI0 0 ppm

ATHS 0 ppm

1355 Collected 0.17-0.19 BH

SVDA -9.0-9.5'

TPH GC-BTEX

- diesel fuel apparent

in drill cutting

Kathy Pittcock

Kathy Pittcock

7/20/94

79

0.5- Silt, roots, moist-dry;

1.0 trace clay; loose;

trace sand; trace

gravel; pebble size;

medium-dark yellowish-salid

brown

1.0- Silt; some sand;

2.5 little gravel; pebble

size; soft, wet, little

gravel; trace clay;

dark yellowish-grey

brown

4-5 Silt; little-sand

sand; little gravel;

pebble size - little

gravel; wet, soft;

dark yellowish-grey

brown; trace clay;

Silt; firm, wet;

trace clay; little

gravel; pebble size;

dark yellowish brown;

Silt; trace clay; little

gravel; pebble size; firm-

wet; dark yellowish brown

Kathy Pittcock

7/20/94

7/20/94 81

80

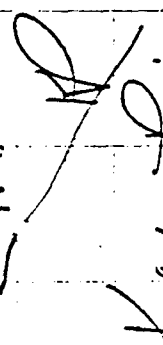
1448 Started 017-020 BH
 1425 Collected 0.5-2.5'
 1427 3759 75% Recovery
 - ~~TPH~~ PID 0 ppm
 ATHS 0 ppm

1430 Collected 017-020 BH -
 SVDA 1.5-2.0
 TPH GC-BTEX

1445 Collected 4-6'
 3222 75% Recovery
 PID 0 ppm
 ATHS 0 ppm

1450 Collected 017-020 BH -
 SVDA 5.0-5.5
 TPH GC-BTEX

1500 Collected 8-10'
 5121927 70% Recovery
 PID 0 ppm
 ATHS 0 ppm
 1505 Collected 017-020 BH
 - SVDA 9.0-9.5
 TPH GC-BTEX



 Kathy Pittsford

0.5-1.0 Silt; roots; trace clay; little sand; little gravel; pebble size; loose; moist-dry; dark yellowish brown

1.0-2.5 Sand and gravel; some silt; loose; moist-wet; tabular gravel; pebble size; dark yellowish-grey; brown

4-6 Peat; some silt; medium-dark; grey brown; firm; true-little clay; soft; wet;

8-10 Silt; trace clay; little gravel; cobble size; wet; firm; trace sand; dark yellowish brown


 Kathy Pittsford

82

1515

Drillers

decontaminating
augers and drill rig by
the following procedure:

- steam clean with
Liquidinox and potable
water
- rinse with potable
water

The above procedure have
been used throughout
the drilling program at
sites 17 and 21.

The following procedure

have been used for decontaminating
the stainless-steel split
spoons:

- wax & scrub with
by alcohol and
potable water;
- rinse with potable
water;
- rinse with deionized
water;
- rinse with methanol;
- air dry & wrap with
aluminum foil (shiny side)

Kathryn Pittelott

7/20/94

Drillers

- steam clean with
Liquidinox and potable
water
- rinse with potable
water

The above procedure have
been used throughout
the drilling program at
sites 17 and 21.

The following procedure

have been used for decontaminating
the stainless-steel split
spoons:

- wax & scrub with
by alcohol and
potable water;
- rinse with potable
water;
- rinse with deionized
water;
- rinse with methanol;
- air dry & wrap with
aluminum foil (shiny side)

Kathryn Pittelott

7/10/94

83

- The above procedure
have been used
throughout the drilling
& sampling program for
sites 17 and 21.

Collected equipment
insectate

- Joe Byrd Jr. (OPTECH)
observing drillers move
11 drums to staged area

on pad at Site 17

Shipped (9) subsurface
soil sample, (4) duplicate
and (1) equipment insectate
via Federal Express.
Air Bill #

Kathryn Pittelott

81

Thursday 7/21/94

Weather: cloudy, mid 60's; showers predicted.

730

Joe Byrd, Jr.

OPTech / Ruben Torres

Kathryn Pittelott

at Hangar 103 to

load Ford Explorer

for collecting subsurface

soil samples at Site 15.

800

met Site ~~Engel~~ Gage

(DPMO) to unlock gate

at Site 18.

830

OPTech / Ruben Torres

Kathryn Pittelott

at Site 18

715

Called Beth Galloway

(MPCA) to update her

about project. Told her

that we probably collecting

ground-water samples from

Site 21 on Friday (7/22/94).

She said Richard Kofner

(MPCA) will contact me.

- he is on birth or vacation

- he probably will observe

an work. P. Galloway

7/21/94

85

Decontaminating 2"x5"

brass sleeve, plastic

caps, and hand auger

(stainless steel) by the

following procedure:

• scrub with alcohol

and potable water;

• rinse with potable

water;

• rinse with deionized

water;

• rinse with methanol;

• air dry and wrap with

aluminum foil (shiny

side out).

Raining - rain

showers only

Raining too hard to

continue with collection

of subsurface soil samples

1005 - left Site 18

1030 - headed back to hotel to

change clothes and wait for

weather to clear up.

Kathryn Pittelott

86

7/21/94

1315

Arrived at Huntington

E&E to pick up
designated water (3 gallons).

\$35.00

per
Huntington finished moving

Squalls

barrels at Site 2/
to designated area behindBldg. 240. Joe Byrd, Jr.
observed this task.

1350

Ruben Torres and
Kathryn Pittslettarrived a Hager 103
to pick up supplies.
Light shower expect on
the hill.

1500

Called ~~Steve~~ Steve
Stark (Huntingdon) toorder additional 55-gallon
drum for 021-026ms
to be delivered tomorrow.

1400

Called John Morris (OPTech)
to update about project.

1505

Called Viking Industrial
North (619-4851) to ordernitride gloves 4730 4748 Grant Avenue from
40th Avenue & Kit - South I-35
TL Blvd - 7 block on
out 111 211.71

87

7/21/94

Left Hager 103

Went to Viking

Industrial North to

Purchase (5) boxes of

Nitrile gloves (100 each)

and one

pair of safety

glasses

for Joe Byrd, Jr.

Went to

The Paper Store

to photocopy field notes.

It has been very difficult

finding an available

copy machine. Only

photocopy (55) pages of

Joe Byrd, Jr. field notes

before problems occurred

with the only available

copy machine.

Went to Minnesota

Surplus to purchase

mosquito net. - surrounded

Back at Hotel. ~~located~~

the desk manager to allow

me to use their copy machine.

After several attempts -

constant paper jams made it

impossible to complete the

task. Kathyn Pittslett

86

7/22/94

Weather: Cloudy: 60's
+15 Joe Byrd, J.D. / Ruben
Kathryn Pittsott at Site 2/1
800 021-009mw

PID 0 ppm

TX W.L. 10.84' $h = 9.08$
T.D. 19.92
 $V = (0.163) (9.08') = 1.5 \text{ gals.}$

885 $VX3 = 4.5 \text{ gallons}$
Started bailing with
a PVC 2" bailer

(decontaminated by
method stated on p. 85
of this field logbook.)

815 Calibrated pH, Temp,
Cond. meter

pH 7 & 10

1000 $\mu S/cm$

| gals | Temp | pH | Cond. | Clarity |
|----------|------|------|-------|---------|
| 820 14.5 | 55.8 | 6.60 | 1481 | cloudy |
| 525 6.5 | 54.2 | 6.58 | 1496 | cloudy |
| 827 7.0 | 54.2 | 6.53 | 1481 | cloudy |

Stopped pumping
pumped dry
p.m. 1. Pittsott

7/22/94 89

930
847

collected 021-009mw -
WA HCL GWOL,
1-45 500ml metels HNO₃ used Teflon
Photo W.L. 12.88' TDC bailer

Temp. pH cond. clarity
57.6 5.83 1330 cloudy

- collected 1 L clear
for metals to allow
silt to settle out then
decant into 500ml

poly bottle preserved
with HNO₃

Photo of collected sample

1000 021-010mw PID = 0 ppm

W.L. = 6.86' TDC $h = 10.76$
T.D. = 17.56' TDC

$V = (0.163) (10.76') = 1.7 \text{ gallons}$

$VX3 = 5.2 \text{ gallons}$

1005 Collected equipment
insecte - bailer (2" Teflon)
021-RB04

3-45 ml WA HCL
1-500ml metels HNO₃

~~1005~~ 100th Pittsott

90

7/22/94

1005 Started bailing using PVC
2" bailer

| Gals | Temp | pH | Cond. | Clarity |
|------|------|------|-------|---------|
| 5 | 60.2 | 5.89 | 734 | cloudy |
| 6.5 | 59.4 | 6.18 | 721 | cloudy |
| 8.0 | 56.7 | 6.35 | 681 | cloudy |
| 7.5 | 55.1 | 6.43 | 670 | cloudy |
| 8.5 | 55.1 | 6.71 | 683 | cloudy |

Stopped bailing purged
dry

1055

Collected 021-010mw -
3-40ml VOA HCL GWO1
1-500ml metals HNO3

- Collected 1 L clean ~~for~~ for
metals to allow silt to settle
out then decant into 500 ml
poly bottle ~~into~~ preserved
with HNO3.

- Collected duplicate

021-010Amw-GWO1
12.70' TOC

| W.L. | Temp. | pH | Cond. | Clarity |
|------|-------|------|-------|-----------------|
| 61.4 | 61.4 | 6.76 | 783 | Slightly cloudy |

1115

Kath Patterson

1125

021-026mw
PID 0 ppm
W.L. 8.21' TOC
TRD = 20.22' TOC
(0.163) (12.01) = 2.0 gallons
3 = 6 gallons
Started bailing with 2" PVC bailer

| Gals | Temp. | pH | Cond. | Clarity |
|------|-------|------|-------|---------|
| 6 | 62.4 | 7.31 | 703 | cloudy |
| 8 | 62.4 | 7.31 | 751 | cloudy |
| 10 | 62.5 | 7.03 | 861 | cloudy |
| 12 | 61.1 | 6.99 | 905 | cloudy |
| 14 | 61.2 | 7.00 | 967 | cloudy |
| 16 | 62.5 | 6.99 | 1103 | cloudy |
| 18 | 61.9 | 6.82 | 1127 | cloudy |
| 20 | 61.5 | 6.79 | 1130 | cloudy |
| 22 | 61.5 | 6.72 | 1193 | cloudy |
| 24 | 60.9 | 6.72 | 1271 | cloudy |
| 26 | 60.4 | 6.73 | 1254 | cloudy |
| 28 | 59.8 | 6.98 | 908 | cloudy |
| 30 | 58.1 | 7.11 | 835 | cloudy |
| 32 | 57.4 | 7.33 | 667 | cloudy |
| 34 | 55.7 | 7.70 | 624 | cloudy |

Kath Patterson

7/22/94

91

92

7/22/94

Cuba Temp. pH Cond. Clarity
 1301 36 55.2 7.81 684 cloudy
 1307 38 56.4 7.85 722 cloudy
 1310 40 58.4 7.60 777 cloudy

Stopped pumping →
 Pumped dry,
 to lunch.

1320
 1430

Got Key to Site 18 pte
 from Sue Gage (DRMO).
 Air Products
 373 ~~Centerburg Rd.~~

Centerburg Rd.

Shakopee, MN

(612) 445-4610 55379

Minneapolis, MN

1440
 1440 OPTech / Joe Byrd, Jr.
 Kellen Tower

Kathryn Pitts

arrived at Site 21

Collected 021-026 mw-

3-40 ml VOA HCl GWS

1-500 ml metals HNO₃ used 2"

-1 l clean was collected for

metals for allow silt to

settle out then decant into

bottle 500-ml poly bottle prepared

Kath. Pitts

7/22/94 93

W.L. 8.55' TOC
 Temp pH Cond. Clarity
 63.2 7.02 967 slightly cloudy

1535 021-014mw

PID.

0 ppm

W.L. 4.85' TOC h = 13.0'

T.D. 14.88 TOC

V = (0.163) (10.01') = 1.6 gallon

VX3 = 4.9 gallons

Started bailing with 2"

PVC bailer

| Gases | Temp. | pH | Cond. | Clarity |
|-----------|-------|------|-------|---------|
| 15 + 4850 | 63.6 | 6.68 | 1654 | cloudy |
| 15 + 4853 | 59.6 | 6.83 | 1673 | cloudy |
| 15 + 4856 | 59.3 | 7.06 | 1731 | cloudy |
| 1600 | 59.2 | 7.31 | 1721 | cloudy |
| 1604 | 59.0 | 7.29 | 1711 | cloudy |
| 1607 | 59.3 | 7.35 | 1711 | cloudy |

Stopped pumping

Collected 021-014mw

3-40 ml VOA HCl - GW

1-500 Poly metals HNO₃

- Collected 1 l for metals

to allow silt to settle

part then decant into 500-ml

poly bottle prepared with HNO₃.

Kath. Pitts

44

1530

7/22/94

Collected one field blank

for Site 21

021 - FBO1

3-40 mL VOA HCL

1 L amber SVOA

1 L amber TPH HCL

1 L Rest

1-500 mL Poly metab HNO₃

Shipped (4) ground water samples, (1) duplicate,

(1) field blank for Site 21,

(1) equipment rinsewater,

and (1) trip blank.

(745)

Kathy Pittlett

7/20/94

95

Weather: partly cloudy;
mid-high 70s, chance of
showers.

700 Joe Byrd, Jr.

Ruben Torres

OPTECH Kathy Pittlett

at Hager 103 to

load up supplies

Arrived at Site 17

to collect 1.5-2.5

Antennal at 017-010BH.

OPTECH Joe Byrd, Jr.

Ruben Torres

Kathy Pittlett

805 Collected 017-010BH -

2"x5" SVOC 1.5-2.5

Brass TPH GC-BTEX

severe

silt; some dead;

Off Site 17

Joe Byrd, Jr.

Ruben Torres

OPTECH Kathy Pittlett

at Site 18

dark, yellowish-
grey brown;
moist -
dry

Kathy Pittlett

9/6 7/23/94

245 Started hand auging
018-007 BH
Collected 10"-20"

PID = 190 ppm
ATHS: 57.3 ppm
100% Recovery

85T Collected 018-007 BH
2"x5" - VOA - 1.3-1.7
GC-BTEX to bottle
Silt; + trace clay;
note: trace gravel;
granule; trace sand;
soft; moist
odor

905 Collected 018-007 BH
2"x5" - VOA - 1.7-2.1
GC-BTEX 1.7-2.1
PID 90 ppm
ATHS 57.0 ppt
100% Recovery

910 Collected duplicate
018-007 BH- 2.1-2.5

415 Started 018-006 BH
930 Collected 0.8-1.7

100% Recovery PID 0 ppm
ATHS 0 ppm

7/23/94 97

935 Collected 018-006 BH -
2"x5" - VOA 1.3-1.7
GC-BTEX

940 Collected 1.7-2.5
100% Recovery
PID: 0 ppm

945 Collected 018-006 BH -
2"x5" - VOA - 1.7-2.1
GC-BTEX MS(MSD)
Sleeve 947 Collected 018-006 BH -
2"x5" - VOA 2.1-2.5
GC-BTEX

955 off Site / 8
1015 8 Athyn Pritchett
DTECH Reuben Torres
at Site 21 to
collect sediment

1125 Collected 021-006 SD
2"x5" - VOA
GC-BTEX
Sleeve
SVC Metals
TPH GC-BTEX

PID 0 ppm
ATHS 0 ppm
V. 1 D 2.1 m

98

7/23/94

- Augered down 12" using
a stainless-steel
hard auger with 2"x5" brass
brass sleeve

1205

2"x5"

Brass

Sleeve

#1210

Collected

VOA

SVOA

TPH

Collected Duplicate

021-0055D

PID: 0 ppm

Collected 021-0075D

VOA

SVOA

TPH

Pest

GC-BTEX

0 ppm

0 ppm

0 ppm

0 ppm

0 ppm

0 ppm

0 ppm

0 ppm

0 ppm

Kathy Pirella

1235

1310

Collected

VOA

SVOA

TPH

PID

ATHS

0 ppm

0 ppm

0 ppm

Kathy Pirella

7/23/94

99

~~to lunch~~ to lunch

Back at Hanger 103

Packing samples to ship
to lab and unload truck
to reorganize supplies

Shipped (1) Subsurface

soil sample (surface) from

Site 17, (4) Subsurface soil

samples from Site 18, (8) MSD

(1) duplicate, (1) MSD, MSD

(4) sediment samples from

Site 21, (1) duplicate,

(1) MSD/MSD to lab

via Federal express

Air Bill # 630544/822

Arrived at Hanger 103

to reorganize supplies

and replace Ford explorer.

Left Hanger 103 for the

Hotel.

Kathy Pirella

1330

1500

1630

1655

1800

7/24/94

Checklist for Duluth
RFI Sites 17, 18, ad
21 field activities.

Site 17 GC Screen Sample (5)
 ✓ Soil Borings
 ✓ 017-010 BH 3 ✓ SS, 2 ✓ 3
 ✓ 017-011 BH 3 ✓ SS, 2 ✓
 ✓ 017-012 BH 3 ✓ SS, 2 ✓
 ✓ 017-013 BH 3 ✓ SS, 2 ✓
 ✓ 017-014 BH 3 ✓ SS, 3 ✓
 ✓ 017-015 BH 3 ✓ SS, 3 ✓
 ✓ 017-016 BH 3 ✓ SS, 3 ✓
 ✓ 017-017 BH 3 ✓ SS, 2 ✓
 ✓ 017-018 BH 3 ✓ SS, 3 ✓
 ✓ 017-019 BH 3 ✓ SS, 2 ✓ 3
 ✓ 017-020 BH 3 ✓ SS, 3 ✓

QA/QC
 ✓ Equipment Rinsewater 3 ✓
 ✓ Duplicates 3 ✓
 ✓ MS/MSD 2 ✓
 ✓ Trip Blank 1 ✓

Water-level data 1P

Investigator derived waste log
 check drums & keep caution
 tape around them
 Pictures of Site 17 & Survey
 17th - 18th

7/24/94

101

Site 18 GC Screen Sample (2)
 ✓ Soil Borings
 ✓ 018-006 BH 2 ✓ SS, 2 ✓
 ✓ 018-007 BH 2 ✓ SS, 2 ✓
 ✓ QA/QC
 ✓ Equipment Rinsewater 1 ✓
 ✓ Duplicates 1 ✓
 ✓ MS/MSD 1 ✓
 ✓ Trip Blank 1 ✓
 ✓ Field Blank 1 ✓
 ✓ water-level data
 ✓ Pictures & Survey

Site 21 GC Screen Sample (5)
 ✓ Sediment
 ✓ 021-004 SD 1 ✓
 ✓ 021-005 SD 1 ✓
 ✓ 021-006 SD 1 ✓
 ✓ 021-007 SD 1 ✓

QA/QC
 ✓ Equipment Rinsewater 1 ✓
 ✓ Duplicates 1 ✓
 ✓ MS/MSD 1 ✓
 ✓ Trip Blank 1 ✓

Kathy Pittsott

102

7/24/94

Ground-water Samples GC Screen

021-026 MW 2 ✓ 1 ✓

021-009 MW 1 ✓ 1 ✓

021-010 MW 1 ✓ 1 ✓

021-014 MW 1 ✓ 1 ✓

QA/QC Equipment Rinsewater 1 ✓

Duplicate 1 ✓

Trip Blank 1 ✓

Field Blank 1 ✓

Water-level data redo

More drums

2nd water sample from 021-026 MW

ID on map

Get drillers to complete

surface construction - point

guard post + ID

check if well permit

has been finalized

pictures & survey

K

Kathy P. Pritchett

103

7/24/94

Soil Borings GC Screen

021-015 BH 4 ✓ 55, 2 ✓

021-016 BH 4 ✓ 55, 2 ✓

021-017 BH 4 ✓ 55, 3 ✓

021-018 BH 4 ✓ 55, 2 ✓

021-019 BH 4 ✓ 55, 3 ✓

021-020 BH 4 ✓ 55, 3 ✓

021-021 BH 4 ✓ 55, 3 ✓

021-022 BH 4 ✓ 55, 3 ✓

021-023 BH 4 ✓ 55, 3 ✓

021-024 BH 4 ✓ 55, 2 ✓

021-025 BH 4 ✓ 55, 2 ✓

021-026 MW 4 ✓

QA/QC

Equipment Rinsewater 3 ✓

Duplicate 3 ✓

ms/msd 2 ✓

Trip Blank 4 ✓

Field Blank already collected

check drums & picture

survey

need to call ANG

K

Kathy Pritchett

106

7/25/94

Conductivity Calibration
1000 μ S/cm
pH 7 H silver electrode 603104
pH 10 Union 6047 XULA

Start purging using a
2" PVC banner

| Lab | Temp | Cond. | pH | Clarity |
|-----|------|-------|------|----------------|
| 60 | 59.8 | 583 | 6.42 | clarity |
| 8 | 56.4 | 645 | 6.41 | clarity |
| 10 | 58.1 | 797 | 6.63 | clarity |
| 12 | 59.2 | 857 | 6.65 | " |
| 14 | 56.9 | 914 | 6.67 | " |
| 16 | 57.8 | 1030 | 6.65 | " |
| 18 | 58.6 | 1106 | 6.63 | " |
| 20 | 60.0 | 1108 | 6.64 | " |
| 22 | 59.9 | 1103 | 6.63 | " |
| 23 | 59.3 | 1133 | 6.97 | W.L. 8.96' TOX |

Stopped purging
59.3
Collected 021-026mw-
3-4% VOC HCL GW02

1-500ml Poly Nucleo HNO₃

- collected 1L to allow

2000 silt to settle out for

nucleo then decant into 500-

ml Poly bottle preserved with HNO₃,

7/11/94

7/25/94

607

Site 21 W.L. data

EXP

905 021-026mw W.L. 7.86' TOC

1145 021-012pm W.L. 7.60' TOC

PID 0 ppm T.D. 17.19' TOC

1147 021-010mw W.L. 6.5' 7.00' TOC

PID 0 ppm T.D. 17.56' TOC

1155 021-013pm W.L. 13.17' TOC

PID 0 ppm T.D. 18.27' TOC

1200 021-009mw W.L. 11.65' TOC

PID 0 ppm T.D. 19.92' TOC

1207 021-014mw W.L. 4.96' TOC

PID 0 ppm T.D. 14.82' TOC

1225 to lunch

1304 arrived at Site 21

to meet surveyor (RREN)

OPTech / Kathryn Pettitt

Curben Toner

- tried to contact mark

Easwaran (OPTech) at home

yesterday to find out if the

field crew needs the

GC, HMK, MyDuc, and/or

PID

We can not repeat me during the

day as well. I can not reach him.

108

7/25/94

Site 18 W.C. Data
1355 018-005mw W.L. 7.26 TOC
PID 0 ppm T.D. 14.95 TOC
2.1" TDR
TOR

1400 018-004mw W.L.
+PID ppm T.D.

TOPC
TOR

018-004mw — Could not take measurements because near ~~well~~ hot-headed up against the protective casing making it impossible to unlock monitor well.

1410

Collected Field Blank
018-FB01

1420

3-40 ne VOA HCL
Collected equipment Site 18
waste of stainless-steel hand auger
3-40 ne VOA HCL

Kathy Pittelott

1430

Collected
waste
stainless-steel
for sediment sampling.
HCL

3-40 ne VOA
1 L ne VOA
1 L ne Pest

1 L TPH HCL

1-50 ne Poly metals HNO₃

1445 Surveyor already surveyed Site 18 - off site

1530

Arrived at Site 17

Site 17 W.L. ~~off~~ Data
017-008mw W.C.
T.D.

1545

Went back to Hanger to pack → AFB Freight
will pick up at 1630

1630

Arrived at Base Shipping
and Receiving to meet AFB Freight
to ship (1) large box
(1) cooler
(1) water cooler
(1) hand auger kit

Kathy Pittelott

7/25/94

109

Equipment
Site 21
-steel
auger
for sediment sampling.
HCL

3-40 ne VOA
1 L ne VOA
1 L ne Pest

1 L TPH HCL

1-50 ne Poly metals HNO₃

1445 Surveyor already surveyed Site 18 - off site

1530

Arrived at Site 17

Site 17 W.L. ~~off~~ Data
017-008mw W.C.
T.D.

1545

Went back to Hanger to pack → AFB Freight
will pick up at 1630

1630

Arrived at Base Shipping
and Receiving to meet AFB Freight
to ship (1) large box
(1) cooler
(1) water cooler
(1) hand auger kit

Kathy Pittelott

110

7/25/94

- Dropped off empty air bottle at shipping and receiving so Hyman Freightway (Delux) can pick up at 1400 7/26/94. Shipping and receiving already have closed. Collected field blank

1540

1 L for Site 17: DTA-FB01
1 L for SVA

1 L for TPH HCL

1700 Back at Hanger¹⁰³ to pack off samples to ship to SPL lab.

1755

• Shipped (1) ground-water sample, (1) equipment rinsewater for Site 15, (1) equipment rinser for Site 17, (1) field blank for Site 17, (1) field blank for Site 18, and (1) trip blank to SPL lab via Federal Express, Air Bill #
• Shipped GC HMX, H₂O₂ to HATCO via Federal Express, Air Bill #

7/25/94

111

1805

Returned to Hanger 103

to clean up. Discovered some soil samples (sites 17 & 21) GC screening - need to depose in the composite barrel ~~to~~ the appropriate site

1830

Left Hanger 103 for Hotel

Kathleen P. Pittelott

112

Tuesday
+HFF weather.

7/20/94

high winds; not
arrived at Site 17 -

returned. Keep to gate
for Site 18 to personnel
at the DEMO Bldg.

730

Met CREM - Surveyors
to walk over Site 17
- should receive data
~ 1 - 1.5 weeks.

800

Arrived at Huntington
to meet drillers to
move (5) 55-gallon
drum filled with

development & purge water from
ground-water sampling at Site 21.
Informed Steve there the following:

Soil boring 017-013BH,
017-015BH, and 017-017BH
need to be grouted;

guard post in 021-026mm
need to be painted;

8 I.D. plate needs to
be placed in 021-026mm

Kathy Pritchett

815

Tuesday 7/26/94 113
Informed Shipping +
Receiving at bldg 240 that
the empty bottle will be
pick up at 1100 by
Hymen Freightways

920

Huntingdon off Site 21
- finished moving barrels.
Met with Capt. Steven
Walbrun to walk

930

over Sites 21 and 17.
all Surveyors about
TOC

Note

~ 1015

Arrived at Site 21
- walked over entire site
with Capt. Steven Walbrun

~ 1110

Arrived at Site 17
Walked over entire site
with Capt. Steven Walbrun

1140

Dropped Capt. Steven
Walbrun off at the
headquarters bldg 250

1150

Arrived at Knox lumber
store to purchase 15/16"
socket wrench - Rat-det 1/2" drive,
work gloves, and WD40 for
rusted tools.

11N

1155

7/26/94

Arrived at ~~the~~ designated area for storage of drums from Site 21. need to dump soil from GC screening into composite soil barrel, - left ~~the~~ storage area -> could not remove lid off barrel.

1215

Arrived at Radisson Hotel to pick up Ruben Torres (OPTECH) to deliver him to the airport to catch a 1400 flight to the Hayward project. Shawn

Weyate (OPTECH) had arranged for Ruben Torres to fly out of Duluth tomorrow at

Nico as well as myself. Ruben Torres is expected to be ~~available~~ in Oakland tonight ~~to~~ able to work on the Hayward project tomorrow morning.

Kathy Pinckett

115

7/26/94

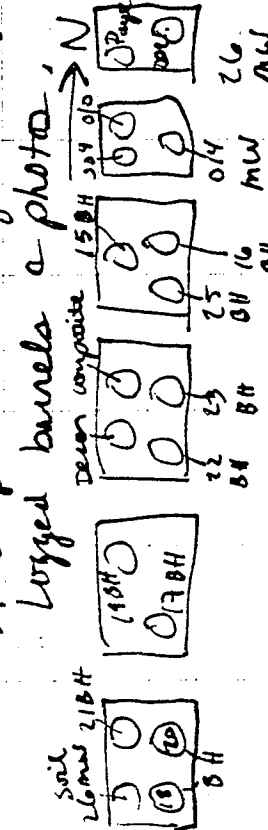
~1235 Called Northwest Airline to rearrange flight time contact Paul Wheeler (ANG Reading Center) to inform him of Site 18 - the GTEX ~1500 ~~at~~ in soil sample north of Study 513.

1420

Dropped off 4 2 1/2" plastic cups, 4 1/2 methanol, eye wash, sand bucket.

1505

Finished. Deposing of GC screen soil samples in composite barrel for Site 21.



1515 021- 013 PM W.L 13.35 TOC T.D.

P.D.

[Signature]

Kathy Pinckett

11N

1155

7/26/94

Arrived at ~~the~~ designated
see for storage of drums
from Site 21, need to
dump soil from GC screening
into composite soil barrel,
- left ~~off~~ storage area
→ could not remove
lid off barrel.

1215

Arrived at Radisson Hotel
to pick up Ruben Torres
(OPTECH) to deliver him to
the airport to catch a
1400 flight to the Hayward
project. Sharon
Wyatt (OPTECH) had
arrange for Ruben
Torres to fly out of
Oakland tomorrow but
Noo as well as myself.
Ruben Torres is expected
to be ~~at~~ Oakland
tonight ~~to~~ able to work
on the Hayward project
tomorrow morning.

Kathy Patterson

115

7/26/94

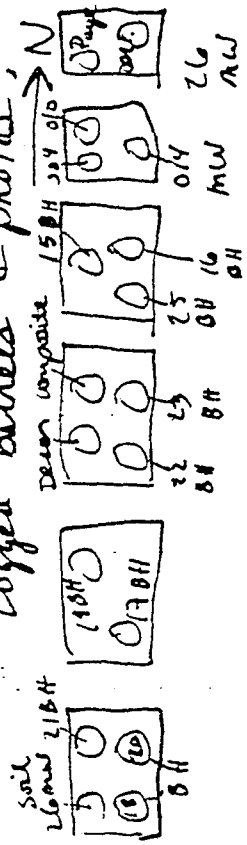
~1235 Called Northwest Airline
to rearrange flight time
Contact Paul Wheeler
(ANGL Reading Center) to
inform him of Site 18 -
THE BTEX ~1500 ~~at~~ Pin
soil sample north of Bldg 513.

1420

Dropped off 1/2 4-L
Methanol, eye wash,
2 1/2" plastic cups, & 4)
sand bucket.

1505

Finished. Deparing of
GC screen soil samples
in composite barrel for Site 21.
Logged barrels & photos.



1515 021- 013 PM W.L 13.35 LOC
T.D. 100

P.D.

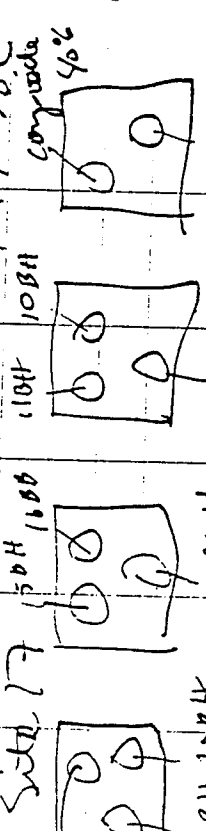
[Signature]

Kathy Patterson

116

7/26/94

1518 021-009 MW WL 4.70C 11.88
 1520 021-014 MW WL 5.2370C
 1522 021-026 MW WL 8.06 70C
 1524 021-010 MW WL 7.23 70C
 1527 021-012 PM WL 7.79 70C



19.3H 20.3H
 009 MW 2/28/92
 18.5H 11.1H 11.1H 100%
 Place "Caution Do Not Enter" Tape & Photo
 Arrived at Hangar 103
 to clean out supplies, sweep floors, and dispose of garbage

Arrived at Base Headquarters bldg. 200 to drop off Keys to Capt. Steven Walbravetsky and briefly discuss outstanding issues. He had already left for the day - left Keys so they can be placed on his desk.

1630

7/26/94

17

Dropped Ruben Torres (OPTTECH) off at the airport - He is traveling to the Hayward project.
 Arrived at Federal Express office to ship the following:
 • change to HMX to Hayco
 • 4 coolers with empty sample bottles to SPL Lab
 • DI water, supplies, WP & HWS plan, and maintenance
 • PID to Phoenix project - attn: fix Byrd, Jr. at the Courtyard Marriott.
 • Shipped as Dangerous Goods
 • Left Federal Express office

1705
 1 box overnight
 4 boxes economy
 3 boxes economy OPTTECH San Antonio

1900
 1 box overnight
 Left Federal Express office

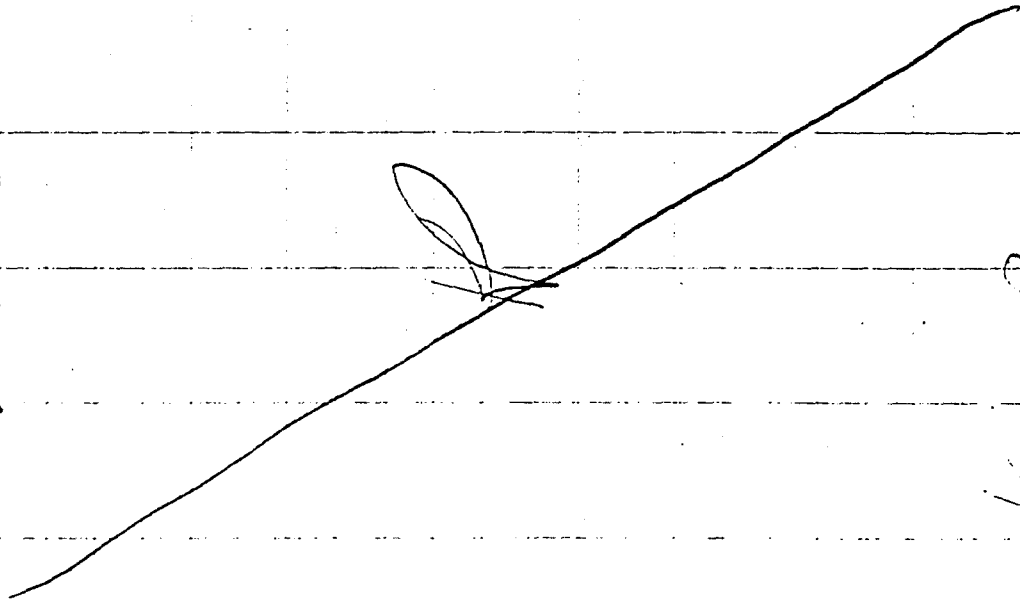
Kath Fitchett

118

600

wednesday 7/27/44

left hotel for airport
for 730 flight to
San Antonio

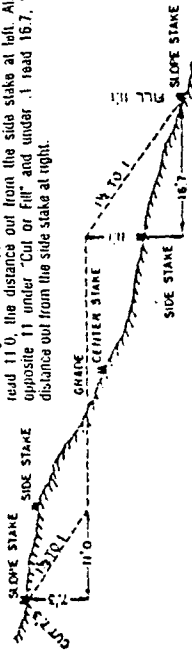


Kahn Pittsford

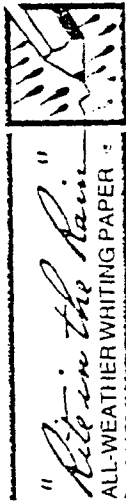
DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING

Roadway of any Width, Side Slopes 1½ to 1.

In the figure below, opposite 7 under "Cut or Fill" and under 3 read 11.0, the distance out from the side stake at left. Also, opposite 11 under "Cut or Fill" and under 1 read 16.7, the distance out from the side stake at right.



| Distance out from Side or Shoulder Stake | | Distance out from Side or Shoulder Stake | | | | | | | | | | | | | | | | Distance out from Side or Shoulder Stake | |
|--|------|--|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|------|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 | 1 |
| 0.0 | 0.2 | 0.3 | 0.5 | 0.6 | 0.8 | 0.9 | 1.1 | 1.2 | 1.4 | 0.0 | 0.2 | 0.3 | 0.5 | 0.6 | 0.8 | 0.9 | 1.1 | 0.0 | 0.2 |
| 1.5 | 1.7 | 1.8 | 2.0 | 2.1 | 2.3 | 2.4 | 2.6 | 2.7 | 2.9 | 1.5 | 1.7 | 1.8 | 2.0 | 2.1 | 2.3 | 2.4 | 2.6 | 1.5 | 1.7 |
| 3.0 | 3.2 | 3.3 | 3.5 | 3.6 | 3.8 | 3.9 | 4.1 | 4.2 | 4.4 | 3.0 | 3.2 | 3.3 | 3.5 | 3.6 | 3.8 | 3.9 | 4.1 | 3.0 | 3.2 |
| 4.5 | 4.7 | 4.8 | 5.0 | 5.1 | 5.3 | 5.4 | 5.6 | 5.7 | 5.9 | 4.5 | 4.7 | 4.8 | 5.0 | 5.1 | 5.3 | 5.4 | 5.6 | 4.5 | 4.7 |
| 6.0 | 6.2 | 6.3 | 6.5 | 6.6 | 6.8 | 6.9 | 7.1 | 7.2 | 7.4 | 6.0 | 6.2 | 6.3 | 6.5 | 6.6 | 6.8 | 6.9 | 7.1 | 6.0 | 6.2 |
| 7.5 | 7.7 | 7.8 | 8.0 | 8.1 | 8.3 | 8.4 | 8.6 | 8.7 | 8.9 | 7.5 | 7.7 | 7.8 | 8.0 | 8.1 | 8.3 | 8.4 | 8.6 | 7.5 | 7.7 |
| 9.0 | 9.2 | 9.3 | 9.5 | 9.6 | 9.8 | 9.9 | 10.1 | 10.2 | 10.4 | 9.0 | 9.2 | 9.3 | 9.5 | 9.6 | 9.8 | 9.9 | 10.1 | 9.0 | 9.2 |
| 10.5 | 10.7 | 10.8 | 11.0 | 11.1 | 11.3 | 11.4 | 11.6 | 11.7 | 11.9 | 10.5 | 10.7 | 10.8 | 11.0 | 11.1 | 11.3 | 11.4 | 11.6 | 10.5 | 10.7 |
| 12.0 | 12.2 | 12.3 | 12.5 | 12.6 | 12.8 | 12.9 | 13.1 | 13.2 | 13.4 | 12.0 | 12.2 | 12.3 | 12.5 | 12.6 | 12.8 | 12.9 | 13.1 | 12.0 | 12.2 |
| 13.5 | 13.7 | 13.8 | 14.0 | 14.1 | 14.3 | 14.4 | 14.6 | 14.7 | 14.9 | 13.5 | 13.7 | 13.8 | 14.0 | 14.1 | 14.3 | 14.4 | 14.6 | 13.5 | 13.7 |
| 15.0 | 15.2 | 15.3 | 15.5 | 15.6 | 15.8 | 15.9 | 16.1 | 16.2 | 16.4 | 15.0 | 15.2 | 15.3 | 15.5 | 15.6 | 15.8 | 15.9 | 16.1 | 15.0 | 15.2 |
| 16.5 | 16.7 | 16.8 | 17.0 | 17.1 | 17.3 | 17.4 | 17.6 | 17.7 | 17.9 | 16.5 | 16.7 | 16.8 | 17.0 | 17.1 | 17.3 | 17.4 | 17.6 | 16.5 | 16.7 |
| 18.0 | 18.2 | 18.3 | 18.5 | 18.6 | 18.8 | 18.9 | 19.1 | 19.2 | 19.4 | 18.0 | 18.2 | 18.3 | 18.5 | 18.6 | 18.8 | 18.9 | 19.1 | 18.0 | 18.2 |
| 19.5 | 19.7 | 19.8 | 20.0 | 20.1 | 20.3 | 20.4 | 20.6 | 20.7 | 20.9 | 19.5 | 19.7 | 19.8 | 20.0 | 20.1 | 20.3 | 20.4 | 20.6 | 19.5 | 19.7 |
| 21.0 | 21.2 | 21.3 | 21.5 | 21.6 | 21.8 | 21.9 | 22.1 | 22.2 | 22.4 | 21.0 | 21.2 | 21.3 | 21.5 | 21.6 | 21.8 | 21.9 | 22.1 | 21.0 | 21.2 |
| 22.5 | 22.7 | 22.8 | 23.0 | 23.1 | 23.3 | 23.4 | 23.6 | 23.7 | 23.9 | 22.5 | 22.7 | 22.8 | 23.0 | 23.1 | 23.3 | 23.4 | 23.6 | 22.5 | 22.7 |
| 24.0 | 24.2 | 24.3 | 24.5 | 24.6 | 24.8 | 24.9 | 25.1 | 25.2 | 25.4 | 24.0 | 24.2 | 24.3 | 24.5 | 24.6 | 24.8 | 24.9 | 25.1 | 24.0 | 24.2 |
| 25.5 | 25.7 | 25.8 | 26.0 | 26.1 | 26.3 | 26.4 | 26.6 | 26.7 | 26.9 | 25.5 | 25.7 | 25.8 | 26.0 | 26.1 | 26.3 | 26.4 | 26.6 | 25.5 | 25.7 |
| 27.0 | 27.2 | 27.3 | 27.5 | 27.6 | 27.8 | 27.9 | 28.1 | 28.2 | 28.4 | 27.0 | 27.2 | 27.3 | 27.5 | 27.6 | 27.8 | 27.9 | 28.1 | 27.0 | 27.2 |
| 28.5 | 28.7 | 28.8 | 29.0 | 29.1 | 29.3 | 29.4 | 29.6 | 29.7 | 29.9 | 28.5 | 28.7 | 28.8 | 29.0 | 29.1 | 29.3 | 29.4 | 29.6 | 28.5 | 28.7 |
| 30.0 | 30.2 | 30.3 | 30.5 | 30.6 | 30.8 | 30.9 | 31.1 | 31.2 | 31.4 | 30.0 | 30.2 | 30.3 | 30.5 | 30.6 | 30.8 | 30.9 | 31.1 | 30.0 | 30.2 |
| 31.5 | 31.7 | 31.8 | 32.0 | 32.1 | 32.3 | 32.4 | 32.6 | 32.7 | 32.9 | 31.5 | 31.7 | 31.8 | 32.0 | 32.1 | 32.3 | 32.4 | 32.6 | 31.5 | 31.7 |
| 33.0 | 33.2 | 33.3 | 33.5 | 33.6 | 33.8 | 33.9 | 34.1 | 34.2 | 34.4 | 33.0 | 33.2 | 33.3 | 33.5 | 33.6 | 33.8 | 33.9 | 34.1 | 33.0 | 33.2 |
| 34.5 | 34.7 | 34.8 | 35.0 | 35.1 | 35.3 | 35.4 | 35.6 | 35.7 | 35.9 | 34.5 | 34.7 | 34.8 | 35.0 | 35.1 | 35.3 | 35.4 | 35.6 | 34.5 | 34.7 |
| 36.0 | 36.2 | 36.3 | 36.5 | 36.6 | 36.8 | 36.9 | 37.1 | 37.2 | 37.4 | 36.0 | 36.2 | 36.3 | 36.5 | 36.6 | 36.8 | 36.9 | 37.1 | 36.0 | 36.2 |
| 37.5 | 37.7 | 37.8 | 38.0 | 38.1 | 38.3 | 38.4 | 38.6 | 38.7 | 38.9 | 37.5 | 37.7 | 37.8 | 38.0 | 38.1 | 38.3 | 38.4 | 38.6 | 37.5 | 37.7 |
| 39.0 | 39.2 | 39.3 | 39.5 | 39.6 | 39.8 | 39.9 | 40.1 | 40.2 | 40.4 | 39.0 | 39.2 | 39.3 | 39.5 | 39.6 | 39.8 | 39.9 | 40.1 | 39.0 | 39.2 |
| 40.5 | 40.7 | 40.8 | 41.0 | 41.1 | 41.3 | 41.4 | 41.6 | 41.7 | 41.9 | 40.5 | 40.7 | 40.8 | 41.0 | 41.1 | 41.3 | 41.4 | 41.6 | 40.5 | 40.7 |
| 42.0 | 42.2 | 42.3 | 42.5 | 42.6 | 42.8 | 42.9 | 43.1 | 43.2 | 43.4 | 42.0 | 42.2 | 42.3 | 42.5 | 42.6 | 42.8 | 42.9 | 43.1 | 42.0 | 42.2 |
| 43.5 | 43.7 | 43.8 | 44.0 | 44.1 | 44.3 | 44.4 | 44.6 | 44.7 | 44.9 | 43.5 | 43.7 | 43.8 | 44.0 | 44.1 | 44.3 | 44.4 | 44.6 | 43.5 | 43.7 |
| 45.0 | 45.2 | 45.3 | 45.5 | 45.6 | 45.8 | 45.9 | 46.1 | 46.2 | 46.4 | 45.0 | 45.2 | 45.3 | 45.5 | 45.6 | 45.8 | 45.9 | 46.1 | 45.0 | 45.2 |
| 46.5 | 46.7 | 46.8 | 47.0 | 47.1 | 47.3 | 47.4 | 47.6 | 47.7 | 47.9 | 46.5 | 46.7 | 46.8 | 47.0 | 47.1 | 47.3 | 47.4 | 47.6 | 46.5 | 46.7 |
| 48.0 | 48.2 | 48.3 | 48.5 | 48.6 | 48.8 | 48.9 | 49.1 | 49.2 | 49.4 | 48.0 | 48.2 | 48.3 | 48.5 | 48.6 | 48.8 | 48.9 | 49.1 | 48.0 | 48.2 |
| 49.5 | 49.7 | 49.8 | 50.0 | 50.1 | 50.3 | 50.4 | 50.6 | 50.7 | 50.9 | 49.5 | 49.7 | 49.8 | 50.0 | 50.1 | 50.3 | 50.4 | 50.6 | 49.5 | 49.7 |
| 51.0 | 51.2 | 51.3 | 51.5 | 51.6 | 51.8 | 51.9 | 52.1 | 52.2 | 52.4 | 51.0 | 51.2 | 51.3 | 51.5 | 51.6 | 51.8 | 51.9 | 52.1 | 51.0 | 51.2 |
| 52.5 | 52.7 | 52.8 | 53.0 | 53.1 | 53.3 | 53.4 | 53.6 | 53.7 | 53.9 | 52.5 | 52.7 | 52.8 | 53.0 | 53.1 | 53.3 | 53.4 | 53.6 | 52.5 | 52.7 |
| 54.0 | 54.2 | 54.3 | 54.5 | 54.6 | 54.8 | 54.9 | 55.1 | 55.2 | 55.4 | 54.0 | 54.2 | 54.3 | 54.5 | 54.6 | 54.8 | 54.9 | 55.1 | 54.0 | 54.2 |
| 55.5 | 55.7 | 55.8 | 56.0 | 56.1 | 56.3 | 56.4 | 56.6 | 56.7 | 56.9 | 55.5 | 55.7 | 55.8 | 56.0 | 56.1 | 56.3 | 56.4 | 56.6 | 55.5 | 55.7 |
| 57.0 | 57.2 | 57.3 | 57.5 | 57.6 | 57.8 | 57.9 | 58.1 | 58.2 | 58.4 | 57.0 | 57.2 | 57.3 | 57.5 | 57.6 | 57.8 | 57.9 | 58.1 | 57.0 | 57.2 |
| 58.5 | 58.7 | 58.8 | 59.0 | 59.1 | 59.3 | 59.4 | 59.6 | 59.7 | 59.9 | 58.5 | 58.7 | 58.8 | 59.0 | 59.1 | 59.3 | 59.4 | 59.6 | 58.5 | 58.7 |
| 60.0 | 60.2 | 60.3 | 60.5 | 60.6 | 60.8 | 60.9 | 61.1 | 61.2 | 61.4 | 60.0 | 60.2 | 60.3 | 60.5 | 60.6 | 60.8 | 60.9 | 61.1 | 60.0 | 60.2 |



Name Joe Byrd, Jr
 Project Serentista
 Address 4100 NW Loop 410, #230
SAN ANTONIO, TX 78229
 Phone (210) 731-0000 1-800-677-8072

Project Duluth 1308-101
 Capt. Stephen WABROWETZ
148 FG/LGPT Bldg. 240
4625 Dence / D, MN 55811
(218) 723-7475

"Rite in the Rain" - a unique all-weather writing surface created by W. F. G. / F. G. / F. G. of the written image. Makes it possible to write sharp, legible data in any kind of weather.

4680 Viper
J. L. DAVIS
TACOMA, WA 98421-3696 USA
(mail)

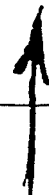
TRAVEL DAY 10 July 1964
 SUNDAY
 0948 Leave home

1848 AT Hotel

90hrs

Air Products
 373 Canterbury Rd.
 Shakopee, MN 56379

| CONTENTS | | |
|----------|-------------------------------------|------|
| PAGE NO. | REFERENCE | DATE |
| | FEDEX 1342-6486-1 | |
| | HARCO 1-800-332-0935 | |
| | SCOTT ROBINSON | |
| | Air Products (415) 961-4560 ext 116 | |
| | (T5509) CALIFORNIA | |
| | 1-800-741-9000 | |
| | OT number | |
| | 210-731-0000-6335 | |
| | RADISSON Hotel | |
| | 505 W. Superior St. | |
| | D, MN 55802 | |
| | (218) 727-8981 | |
| | Air Products (612) 445-4610 | |
| | MINNEAPOLIS | |
| | PHOTOVAC • PASCAL | |
| | (516) 254-4283 • ROBERT | |



MONDAY

DAY 11

(3)

11 July 1994

0630 Leave hotel
Breakfast (0.7 hr)
0755 On base

Weather:

Lo: 55

Hi: 75

50% + rain & thunderstorm

Meet w/ Capt. Wabrowitz
Takes us to check
equipment

Go to GC Bldg. & unload
boxes

0900 Meet w/ base CE to
(Bruce Berg)
mark out utilities at
Site 21

0921 Call Air Products to
check on air delivery

5

AIR gauge on GC is not reading properly. It is reading ~~on~~ psi instead of 1500 psi.

1330 CALL MATT ALEXANDER
NO ANSWER. B Bank down GC. Return to Site Z1 to ride KP & RT

1345 leave B103
1400 AT Site Z1. They don't need my help.

1405 CALL MATT ALEXANDER
Discuss GC.

1420 bet KP, RT. Go to B103

1440 GC is empty of Air. Refill Tank. Time it to see how long before empty.

1500 Call Matt Alexander. Decide to send it back.

1505 CALL HAZCO. ORDER NEW GC

0930 Go to Air Cargo to get equipment.

0950 At Bldg. 103 to unload equip & set up GC stuff

Unpacking equipment.

1100 KP arrives at B. 103. Go to hardware store to get supplies

1135 leave hardware store Go to Base to stake out AREAS.

1140 lunch 12.8 (0.6 hr.)

Head to base

1221 At site Z1
KP, RT stake out site
I go check on deliveries

1230 Zero grade Air is in. Take Air bottle to B. 103

(7)

Scott Robinson determines
that the fifth line is
faulty. He is sending
another

1525 Pack up GC. Go find
PK & RT

Go to dallas office

1543 At dallas office

leave dallas

Go to Site 17

1626 Arr 17

inspect ice chests from Lab.
Pack truck for tomorrow

1702 leave base. Go to
Target to get
Supplies

1730 leave Target

At Hotel

9.9 hrs

Jack Byrd

TUESDAY

12 JULY 1994

0600 Leave hotel

0615 Breakfast (0.7)

0707 On BASE
Sett-up Decon at
Site Z1
Decon equipment

0820 Go to FEDEX to get
package (Air Base from HAZCO)

0830 At FEDEX. They don't allow
pick-up until 0900. Go get
ICE.

0836 At B. 103.
Decon GC Equipment

0903 Go to FEDEX to get hose
0918 Go to Site Z1 to get
some equipment
Aid in more set-up for
Drbg.

WEATHER 10 AMY

Hi: 80
Lo: 55

Windy, slight chance of RAIN

0940

Safety Meeting

KP, RT, John Maris, JB

DRILLERS: STEVE, STERK

Jim ~~SAUGESAD~~
SAUGESAD

Topics: H.HATS, S. GLASSES,

S.T. BOOTS, HEARING PROTECTION,

TRAFFIC IN AREA, NOISE FROM

JETS, SLOPE OF DAILING AREA

0945

GoLo B. 103

TRY OUT NEW NOSE

AT B103. MAKE 1ppm

100 PPB BTEX STDs.

Set-up GC.

1030

Calibrate GC.

(11)

1043 100 PPB BTEX STD.

Resulting chromatogram is very messy

1052

Air BLANK

Very Messy

Both have 120 common

18.8s → 12.6s

24.5s → 24.2s

301.9s → 302.7s

110.8 → 106.9s

TRY to ventilate AREA.

1059

Air BLANK

18.6s

299.5s

106.3s

1108 A.A. BLANK

18.6s

28.4s

110.5s

301.9

1119 CALL MATT ALEXANDER
to discuss this.

He recommends:

- DRY-RUN GC RUN
- INCREASE OVEN Temp.
- 1 ppm std.

1133 DRY RUN ON GC

18.7s

110.8s

301.9s

INCREASE OVEN Temp to
50°C.

1208 DRY RUN ON GC

Same as before

1218 DRY RUN ON GC

Same ol' stuff.

(13)

1229 Take tape to FAX to
MATT

1240 AT Site 21. Pick up JM
Go to hotel to FAX
AND use phone

1325 AT hotel. TALK TO MATT.
LEAVE hotel.

1345 Lunch (0.5 hrs)

1422 ON BASE
CALL MATT ALEXANDER
to find out what to
do with GC.

- change EVENT setting?
- MORE dry RUNS
- SET EVENT 3 to 0.0-5000.
EVENT 5

5-4 in Manual
sample loop is contaminated

1450 Leave Site 21. Go to B103
1502 AT B103.

change. Event settings
Event: 3 0.0 \rightarrow 500.0 sec
Cycle \rightarrow 600 seconds

1504 DRY RUN
Still has peaks. Not as
bad as before

1516 DRY RUN. Same old thing
(SOT)

1527 DRY RUN, SOT

1540 DRY RUN. SOT

During dry runs am preparing
VOAS of soil samples from
morning's drilling activities

1552 DRY RUN.
Charging Event 3 \times 0.0.
Do Count 5 0.0 \rightarrow 500.0.

A flat line down middle
of chart.

(15)
1603 DRY RUN. Turn off ES
Set E3 \times 0.0 \rightarrow 500.0 sec.

SOT!!!

1615 BRY RUN.

CALL MATT ALEXANDER. DURING
RUN. Decide to RETURN
GC.

Linda @ HAZCO.

1640 Pack-up GC For Return
shipment.

1700 leave B103. Go to FEDEX.

1708 Done at FEDEX
Go to Site 21

1715 at Site 21
Meet Jim

1725 Go to B103

1730
1800
AT B103
Aid in sample prep for shipment.

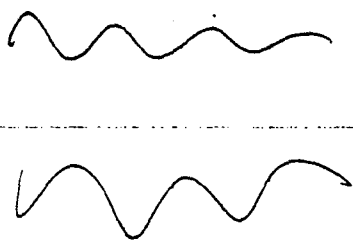
Prepare VOAs samples for GC runs

1800
leave B103.
Go to ~~B103~~ Site 2/ to get J.M.

1811
J.M. not here. check w/ gate guard

1820
leave base

1836
AT Hotel



For Byrd, JR

WEDNESDAY 13 July 1994

0600 leave hotel

Breakfast (0.7 hrs)

0700 On Base. At B103 to ice chest.

0714 AT Site 21
Set up Decon Area.

Weather: Cool
Hi: 75°
Chance of Rain. Coal front moving through.

0730 Safety Meeting
JB, KP, RT, Jim S, Steve S.

Slope on hill, chance of rain, wearing of safety vests.

0737 Sped-IN

~~11.4 HRS~~
11.4 HRS

(19)

Set-up GC & calibrate

GAIN 100
GAS FLOW 10.9 μ l/min
OVEN 40°C
ANALYSIS TIME 400 s
WINDOW $\pm 10\%$
MIN. AREA

1034 100 ppb BTEx std
ABORT RUN
RESET GAIN ± 10

1037 DAY RUN TO Purge
1046 100 ppb BTEx std
ABORT GAIN is too high
RESET GAIN to 2

1049 DAY RUN TO Purge
1057 100 ppb BTEx STD
TOO SMALL
RESET GAIN to 5

1106 100 ppb STD
1120 100 ppb STD

Not getting good readings
Remake STANDARDS

JM Takes care to use phone

JM back on Location
Go to FEDEX to get
new GC

AT FEDEX
NO GC. FEDEX MECHANICAL
FAILURE IN FEDEX'S
Memphis DISTRIBUTION POINT.
They said to check back
AT 0930.

0903 B
0900 AT B103, MAKE
1 ppm & 100 ppb BTEx
STDs

0930 Go to ~~FEDEX~~ B SITE 21
to advise them of
situation

0945 leave 21. Go to FEDEX

0954 GC is in. Go to B103

1000 AT B103

| | | | | | | | |
|------|--|--|--|--|--|------|--|
| 1140 | 100 ppb std. looks better | | | | | 1234 | 100 ppb std. |
| 1150 | 100 ppb std. INCREASE ANALYSIS TIME TO 450 s | | | | | 1245 | 021-025 BH 1.5' - 2.0' Benzene 82 ppb Toluene 6 ppb |
| 1200 | 100 ppb std. INCREASE AT TO 500 s INCREASE AIR FLOW TO 13.8 L/min DECREASE AT TO 400 s. | | | | | 1259 | 021-025 BH 10' - 11' 10g ALK ND's |
| 1218 | 100 ppb std. FINALLY. A Good Picture | | | | | 1308 | 10' - 11' Reshape ALL ND's |
| | AREA: 1.4 V _s ↓ 1,400 mV _s = 70 20 | | | | | 1316 | 021-025 BH 14.5' - 15.0' 12g Benzene 58 ppb |
| 1230 | Set Area to 50 mV _s Set Library Increase AT 430 s | | | | | 1328 | 021-023 BH 1.5' - 2.0' 12g Benzene 73 ppb |

$$\frac{1.2}{\frac{200}{300}} = 1.8$$

1338 100 ppb BTEX STD
need to RECALIBRATE

$$\frac{5,800 \text{ mVs}}{200} = 290$$

Change Area to 200

1414 Air Blank
Benzene 38 ppb

1423 100 ppb std. No Good

1432 100 ppb std, Looks Great
Benzene 91 ppb
Toluene 91 ppb
E-BEN, mpxy 272 ppb

1442 021-023 BH
10.5' - 11.0' 12g
spikes off chart
Reduce Gain to 5

1453 100 ppb std

Calibrate to benzene

E-BENZ & mpxy out of
120% range.
erase & Recalibrate

1506 100 ppb std

$$\frac{2,200 \text{ mVs}}{20} = 110 \text{ mVs}$$

Set Area at 100

1517 Air Blank
22 ppb Benzene

1527 021-023 BH
10.5' - 11.0' 12g
Benzene 647 ppb
Toluene 333 ppb
E-B-mpxy 137 ppb

Re Calibrate to 1 ppm

itself

1 ppm std.
Printer typed all over
can not read any thing

~~1 ppm std.~~
AIR BLANK

1 ppm std.

$$\frac{7,944 \text{ mVs}}{240} = 39.5$$

AREA = 50 mVs

Library Set. Ready to Roll

021-023 BH
10.5' - 11.0' 12g

Benzene 1,110 ppb
Toluene 118 ppb
E-BEN, MPXY 61 ppb

1634

021-022 BH
6.0' - 6.5' 10g

Printer messed up

Reshad 021-022 BH
6.0' - 6.5' 10g

Benzene 399 395 ppb
Toluene 287 ppb
EB, MPXY 220 ppb

1700 021-024 BH
16.5' - 17.0' 12g

1,070 ppb Benzene

~~021-022 BH~~

1715 021-022 BH
11.5' - 12.0' 10g

Benzene 142 ppb
Toluene 10 ppb
EB-MPXY 11 ppb

1550

1601

1610

1621

1726 1 ppm std
Benzene 1,080 ppb
Toluene 976 ppb
EB-MPX 2,710 ppb

1736 Air Blank
ALL ND's

1749 021-022 BH
14.5'-15.0' 10g
Benzene 240 ppb
Toluene 12 ppb
EB, MPX 12 ppb

1800 021-021 BH
14.5'-15.0' 12g

Printer Malfunction
1810 021-021 BH
14.5'-15.0' 12g
Benzene 105 ppb
EB-MPX 59

1821 021-023 BH
14.5'-15.0' 10g
Benzene 103 ppb

1833 021-024 BH
10.5'-11.0' 14g

Benzene 6,130 ppb
Toluene 146 ppb
EB-MPX 776 ppb

1845 1 ppm std
Benzene 845
Toluene 674
EB-MPX 2,010

Need to Recalibrate.
ERASE LIBRARY 2

1959 1 ppm BTEX STD

Benzene @ 6.6 V's
 $\frac{6,600 \text{ mVs}}{200} = 33$
Set AREA \rightarrow 20mV's

(29)

2030 AT HOTEL

1912 AIR BLANK
ALL ND's

1924 021-024 BH
10.5' - 11.0' 14g.
25ul injection (4X dilution)

BENZENE 1,080 ppb
TOLUENE 86 ppb
E BENZ - MPXY 382 ppb

done w/ samples that
had high PID readings.

1940 1 ppm BTEX STD
Benzene 1,130 ppb
Toluene 1,110 ppb
EB - MPXY 3,400 ppb

1949 AIR BLANK
ALL ND's

2000 BREAK DOWN eg air ment.

2008 LEAVE BASE

Joe Byrd

Weather

Hi: 60's

30% chance of showers

(31)

1211 71

Thursday 14 July 1994

0600 leave hotel

Break fast (0.7 hr)

Drop JM off at airport

0700 On base

Set-up GC, Buy ICE.

0725 Goto Site Z1.

0735 At Site Z1

0745 Safety Meeting

- Cold & wet. Be careful not to chill.

- Slippery conditions

- Watch for extra clothing getting hung-up.

JB, RT, KP, SS, BS

0750 Goto BIO3

Decon was

Set-up GC

Prepare 1 ppm & 100 ppb
BTEx STD's

0845

100 ppb std.

Aborted Run. Used syringe
w/ defective needle.

0847

Dry Run to Purge

0859

100 ppb BTEx STD

Gain is too high.

Reset to 5

Reset Air Flow to 12 μ l/min

0915

100 ppb BTEx STD

$$\frac{977.8 \text{ mVs}}{20} = 48.9$$

Set min Area to SD

Calibrate

0927

Air blank

ALL ND's

0937

021-024 BH

2.0'-2.5' 10g

ALL ND's

0948

021-021 BH

2.0'-2.5' 10g

ALL ND's

0959

021-020 BH

10.5'-11.0' 10g

ALL ND's

1008

021-021 BH

6.5'-7.0' 10g

ALL ND's

1018

021-024 BH

6.5'-7.0' 10g

ALL ND's

| | | | | | | |
|------|------------------------|------|-------------------|------|---------------------------|-------------------------|
| 1028 | 100 ppb | BTEX | STD. | 1138 | 021-024 BH 6.5' - 7.0' | Reshoot 10g |
| | Benzene | 88 | <u>RAL</u> 100 | | <u>ALL ND's</u> | |
| | Toluene | 86 | 98 | | | |
| | E-Benz | 31 | 35 | | | |
| | MP-Xyl | 92 | 105 | | | |
| | Recalibration Needed | | | | | |
| 1040 | Go to Site 21 | | | | | |
| 1056 | Get Samples | | | | | |
| | Return to B103 | | | | | |
| 1110 | ABT At B103 | | | | | |
| 1115 | 100 ppb BTEX | STD. | | 1158 | 021-022 BH 1.0' - 1.5' | 79 ppb 10 ppb 10g |
| | 92.4.9 mVs = 46 20 | | | | <u>ALL ND's</u> | |
| | Set Area to 50 mVs | | | 1209 | 021-020 BH 6.5' - 7.0' | 12g |
| 1128 | Air blank | | | | Benzene | 100 ppb |
| | ALL ND's | | | 1220 | 021-020 BH 1.5' - 2.0' | 12g |
| | | | | | <u>ALL ND's</u> | |

| | | | | | |
|------|------------------------------------|-----------------|------|-------------|-------|
| 1230 | 100 ppb BTEX | STD | 1330 | 021-018 BH | 10 g |
| | BENZENE | CAL | | 2.0'-2.5' | |
| | 87 ppb | 100 ppb | | ALL ND's | |
| | TOLUENE | 87 ppb | | | |
| | E-BENZ | 94 ppb | | | |
| | MP-XYL | 181 ppb | | | |
| 1243 | AIR BLANK | | 1341 | 021-018 BH | 12 g |
| | | | | 13.5'-14.0' | |
| | ALL ND's | | | ALL ND's | |
| 1255 | CALL HAZCO | about | 1350 | 021-018 BH | 12 g |
| | GC PRINTER. | I have had | | 9.5'-10.0' | |
| | ADVANCE TAPE | during printing | | ALL ND's | |
| | for last hour. | | | | |
| 1305 | Go to Site 21 | | 1404 | 021-019 BH | 10 g |
| | They have gone to lunch | | | 14.5'-15.0' | |
| | Go to B183. | | | BENZENE | 7 ppb |
| 1322 | At B103 | | 1414 | 021-019 BH | 12 g |
| | Painters have moved A freshly | | | 1.5'-2.0' | |
| | Painted Trailer into hanger. Vent- | | | ALL ND's | |
| | ilate as much as possible. | | | | |
| | does not show-up too bad on | | | | |
| | Readings | | | | |

(39)

1424 100 ppb BTEX STD

BENZENE 80 ppb
TOLUENE 67 ppb
E-BENZENE 66 ppb
MP-XYLENE 109 ppb

CAL

100 ppb
84 ppb
83 ppb
187 ppb

1441 Air Blank
ALL ND's

1451 021-016 BH

2.0' - 2.5' 12g

ALL ND's

1503 021-016 BH

6.5' - 7.0' 10g

ALL ND's

1513

021-016 BH
10.5' - 11.0' 10g

ALL ND's

1525 021-019 BH
6.5' - 7.0 10g

ALL ND's

1535 021-019 BH
10.5' - 11.0' 12g

BENZENE 16 ppb

1545 100 ppb BTEX STD

BENZENE 127 ppb
TOLUENE 106 ppb
E-BENZENE 102 ppb
MP-XYLENE 164 ppb

CAL

100 ppb
83 ppb
80 ppb
128 ppb

Need to Recalibrate

1558 100 ppb BTEX STD

884.3 mV
20 = 44

Set to 50 mV
AREA

(41)

| | | | | | |
|------|---------------------------|----------|------|--|---------|
| 1612 | Air Blank → | ALL ND's | 1736 | 021-015 BH 13.0'-13.5' | 10g |
| 1622 | Go to Site Z1 | | | ALL ND's | |
| 1639 | Get samples for analysis | | | 100 ppb BTEX STD | |
| 1648 | Go to B103 AL B103 | | 1745 | | |
| | Prepare soil for analysis | | | BENZENE | 85 ppb |
| | | | | TOLUENE | 79 ppb |
| | | | | E-BENZENE | 68 ppb |
| | | | | MP-XYLENE | 133 ppb |
| 1704 | 021-015 BH 1.5'-2.0' | 10g | 1758 | Air Blank | |
| | ALL ND's | | | ALL ND's | |
| 1714 | 021-015 BH 6.5'-7.0' | 10g | 1810 | Shut down GC | |
| | ALL ND's | | | Gave pages 5 & 6 of GC Summary to KP for her copying purposes. | |
| 1723 | 021-015 BH 10.5'-11.0' | 12g | 1822 | Leave B103 | |
| | ALL ND's | | | | |

CALC

100 ppb

93 ppb

81 ppb

157 ppb

1836 AT Hotel

DAY 5

(43)

15 JULY 1994

FRIDAY

0600 leave hotel

BREAKFAST (0.6 hrs)

0700 AT B103.

GC. Set-up.

Make 1 ppm std +
100ppb stds (BTEx)

0727 Gato Site 21

0736 AT Site 21

Aide in set-up for
drilling

0800 Drillers here

Safety Meeting: JB, KP, RT, SS, JS

• Be careful around rig.

• Weather Hi: 70's

Very Nice Day

0816 Take Steve to get
bras sleeves & eyewash

11.9 hrs

| | | | |
|------|---|------|---|
| 0927 | BACK AT Z1 | 0936 | 100 ppb BTEX STD |
| 0831 | Go to B103 | | 1.5 V _s |
| 0840 | AT B103 | | ↓ |
| | GC has not warmed up. ← LAMP NOT READY → | | $\frac{1,500 \text{ mV}_s}{20} = 75$ |
| 0918 | Turn off GC, let GC cool down. | | Min Area → 50 mV _s |
| | GC is on and ready to be programmed. | | Set Library |
| 0925 | 100 ppb BTEX STD : Disregard this shot. I forgot to set gas flow rate | 0952 | AIR BLANK ALL ND's |
| | Set Flow Rate: 12.3 $\mu\text{l}/\text{min}$ Gain: 5 Oven Temp: 40°C Anal. Time: 430 sec Window: 110% | 1000 | Go to Size Z1. Get samples. Return to B103 |
| | Min Area: 50 mV _s | 1024 | Prepare samples. |
| | | 1029 | ⁵⁷ 021-017 BH 2.0'-25' 12g ALL ND's |
| | | 1038 | 021-017 BH 5.5'-60' 10g ALL ND's |

(47)

1019 021-017 BH
10.5'-11.0'12g ALL ND's1100 021-017 BH
14.5'-15.0'

12g

ALL ND's1124 100 ppb std
BENZENE
Toluene
ETHYLbenzene
MP-Xylene87 ppb 100 ppb
95 ppb 107 ppb
100 ppb 113 ppb
193 ppb 217 ppbCAL

1135 AIR BLANK

ALL ND's

1145 Goto Site 17

1154 AT site 17

Get soil samples

Goto B103

AT B103

PREPARE samples for
GC Analysis1241 021-026 MW
2.0'-2.5'

10g

ALL ND's1250 021-026 MW
8.5'-9.0'

10g

ALL ND's1300 021-026 MW
11.0'-11.5'

12g

ALL ND's1309 021-026 MW
16.5'-17.0'

10g

ALL ND's

1319 100 ppb BTX STD.

BENZENE 115 ppb

Toluene 116 ppb

E-BENZENE 120 ppb

MP-XYLENE 223 ppb

CAL

100 ppb

101 ppb

105 ppb

194 ppb

1332 AIR BLANK ALL ND's

1345 Goto Site 21

1356 AT Site 21

1405 Leave base
lunch

1512 ON BASE

(1.1 hr)

MONDAY 18 July 1994

Break down Site Z1

1540
1550

leave site Z1
At B103
unload & store again
for weekend

0600 leave hotel

Break fast (O.F)

Get ICE

0658 At B103

Do Rinseate blanks

Pack ICE chest
lock & Secure B103

1655 KP & RT go to FedEx
leave base

1724 At hotel

Load Truck for today's
activities.

Set-up GC. Don't calibrate.
yet because it will be a
while before drilling
starts & I will need to
recalibrate by then.

KP leaves to meet w/
driller

Build 1 ppm & 100 ppb
BTX STD

0805 KP & driller arrive.
Set-up to down rig in
preparation for Site 17.

Joe Byrd Jr

9.7 hr

| | | | | |
|------|--|------|---|------|
| 0813 | CALL MARK ESCOBAR. I AM HAVING TROUBLE WITH THE 10ul SYRINGE. TALK TO MATT ALEXANDER. I need to go NEITHER ONE IS IN. I WILL CALL BACK LATER. | 1000 | Drillers go Decon Rig. | (51) |
| | | 1020 | DONE deconning Rig. Drillers go to Site 97. | |
| | | 1023 | BEGIN GC CALIBRATION to 100 ppb. | |
| 0825 | Go to Site 17 to aid in set-up | 1035 | 100 ppb BTEX STD Chromatograph is small Increase gain to 10 | |
| 0900 | Go to B103 CALL OFFICE TALK to Sandy Ruiz. MATT & MARK still not in. WILL CALL BACK AFTER 1:00 pm. Waiting on drillers to arrive | 1046 | ERASE LIBRARY 1. 100 ppb BTEX STD. | |
| | | | $2.2 \text{ } V_s = \frac{2,200 \text{ mVs}}{20} = 110$ | |
| 0948 | Rig arrives. Drillers park it in Decon to AREA & LEAVE | 1055 | Set min Area to 100 Set Library 1 | |
| 0958 | KPD I go to Site 17. Drillers are there They dropped off equipment | 1100 | Air blank. ALL VDS | |
| | | 1109 | Methanol | |

53

| | | | | |
|------|---|------|---|---|
| 1118 | Go to Site 17 to get samples | 1229 | 017-015 BH 1.0'-1.5' 12g | ALL ND's |
| 1127 | Back at B103 Prepare samples | 1238 | 017-015 BH 5.5'-6.0' 12g | ALL ND's |
| 1136 | 017-016 BH 1.5'-2.0' 12g | 1249 | 100 ppb BTEX STD BENZENE 90 ppb TOLUENE 86 ppb E-BENZENE 80 ppb MP-XYLENE 217 ppb | CAL 100 ppb 95 ppb 89 ppb 242 ppb |
| 1147 | 017-016 BH 5.5'-6.0' 12g | | ERASE LIBRARY RECALIBRATE | |
| 1156 | Go to Site 17 to get soil samples. | 1202 | 100 ppb BTEX STD | |
| 1201 | Back at B103 Prepare SATL soil samples for GC ANALYSIS. | | 2.1 VS \Rightarrow 100 mVs setting Set LIBRARY | |
| 1210 | 017-016 BH 9.5'-10.0' 16g | 1313 | AIR BLANK | ALL ND's |
| 1220 | Go to Site 17 to get soil samples | 1322 | 017-015 BH Reshoot 5.5'-6.0' 12g | ALL ND's |
| 1227 | Back at B103 | | | |

we will send stuff to
FEDEx office.
CALL MARK ESCOBAR.

Go to Site 17.
During Rain shower (T-store)
PID got wet. Now it doesn't
Run. Call PID company to
See if it can be
Trouble shot over the
phone.

CALL DETERMINATOR Co.

Go to Site 17. Bring PID
back to B103.

PREPARE SAMPLES

017-015 BH
9.0'-9.5'

ALL NDS

12g

017-013 BH
5.5'-6.0'

ALL NDS

10g

Go to Site 17 to get samples
At B103. Prep. Samples

1514 017-013 BH
2.0'-2.5'

12g

ALL NDS

1528 017-013 BH
9.5'-10.0'

12g

ABORTED
RUN

1537 017-013 BH
9.5'-10.0'

12g

ALL NDS

1546 100 ppb BTEX STD

BENZENE

TOLUENE

ET-BENZENE

MP-XYLENE

90 ppb

74 ppb

67 ppb

136 ppb

CAL

100 ppb

93 ppb

84 ppb

170 ppb

1559 Air Blank

ALL NDS

Break down GC.

Decon VOA

PACK samples for shipment
to Lab

RT, KP go to FEDEX

~~Leave~~

Leave B103

1718

At hotel

1740

DAY 9

TUESDAY

19 July 1994

0600

Leave hotel

Breakfast (0.7 hr)

0655

On Base, at B103

Set-up GC.

Camp NOT Ready. Turn off GC, wait 20 minutes.

0725

Turn on GC.

It fires up.

0730

DAY RUN.

MAKE 1 ppm & 100 ppb
BTEx STDs. KP is ready

to go to Site 17.

0732

Go to Site 17.

Safety Meeting. Topics

- Weather. Mostly Cldy. 50% chance of rain & T-storms.
- Beware of lightning
- Watch for snakes in grass
- Footling Awareness

11.0 hrs

Jan Byrd Jr

| | | | |
|------|---|------|---|
| 0750 | Ad in set-up of site Safety Meeting JB, KP, RT, SS, BS. Topics on previous page | 0915 | At B103. Continue calibration |
| 0805 | Go to B103, Continue calibration GC. Having trouble w/ 10 µl syringe. I am supposed to receive another today, hopefully in the A.M. FEDEX RUN | 0921 | 100 ppb BTEX STD Gain was not properly set Reset to 10. |
| 0838 | Call office. Talk to M. Henson to check on delivery. Finally get 10 µl syringe to work. Build ppm & 100 ppb BTEX STDs | 0932 | 100 ppb BTEX STD. $1.9 \text{ mVs} \Rightarrow \frac{1900}{20} = 95 \text{ mVs}$ Set min. area: 100 mVs. Set Library |
| 0856 | Go to FEDEX Get Package. Go to Site 17. Get soil samples | 0944 | Air Blank ALL NDs |
| | | 0956 | 017-014BH 2.0'-2.5' Toluene 12g 21 ppb |
| | | 1006 | 017-014BH 4.5'-5.0' 10g ALL NDs |
| | | 1017 | 017-014BH 9.5'-10.0' 12g Toluene 22 ppb |

(61)

| | | | | | |
|------|---|---------------------------------------|---|---|---|
| 1027 | 60Lo Site 17. Get Soil samples. Back at B103 Prepare soil samples. | | | | |
| 1033 | | | | | |
| 1044 | 017-012 BH 2.0'-2.5' Toluene | 12g 21 ppb | | 017-011 BH 2.0'-2.5' Toluene | 10g 25 ppb |
| 1055 | 017-012 BH 5.5'-6.0' Toluene | 12g 20 ppb | | 017-011 BH 9.5'-10.0' 10g | ALL NDS |
| 1105 | 100 ppb BTEX Benzene Toluene E-Benzene MP-Xylene | 82 ppb 75 ppb 77 ppb 147 ppb | CAL 100 ppb 92 ppb 95 ppb 180 ppb | ALL NDS Done with this AM's soil samples. KP & RT have gone to lunch. Prepare more VOA VIALS. | |
| 1119 | AIR BLANK Toluene | | | 100 ppb BTEX STD. | CAL 100 ppb 93 ppb 83 ppb 158 ppb 92 ppb |
| 1131 | 017-012 BH 9.5'-10.0' Toluene | 14g 25 ppb | | Benzene Toluene E-Benzene MP-Xylene O-Xylene | 117 ppb 108 ppb 97 ppb 184 ppb 107 ppb |

Need to Recalibrate
EPA Library.

1258 100 ppb BTEX STD
2.5 V3 → Min AREA 100 mV5

1311 AIR BLANK ALL ND's

1322 GoLo Site 17.
Get soil sample.

1340 AT B103
Prepare soil sample.

1346 017-010 BH
4.5'-5.0' ALL ND's
12g

1400 FEDEX Package is AT
hotel. Go get it.

1435 At site 17.
Get soil samples
Put new part on P20

1445 AT B103
Prepare soil samples for
analysis.

1452 017-010 BH
9.5'-10.0' ALL ND's
12g

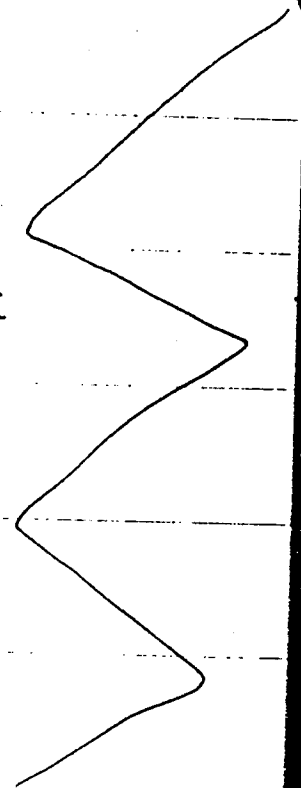
1502 017-017 BH
1.5'-2.0' ALL ND's
10g

1511 017-017 BH
5.5'-6.0' ALL ND's
10g

1522 GoLo Site 17.
Get last soil sample for
day. Drillers have already
gone.

1528 AT B103. Prepare sample
for analysis.

1532 017-017 BH
9.5'-10.0' 10g
19ppb
Toluene



(65)

1547 100 ppb BTEX STD

Benzen
Toluene
E-Benzen
MP-Xylene

72 ppb
75 ppb
65 ppb
127 ppb

1723

leave FEDEX
AT hotel

1742

ALL NDS

AIR BLANK

1602

100 ppb BTEX STD
Benzen
Toluene
E-Benzen
MP-Xylene

113 ppb
115 ppb
98 ppb
191 ppb

CAL
100 ppb
102 ppb
86 ppb
169 ppb

1620. Shut-down GC.
WRAP-UP AREA.
KP-RT ARE doing E. blanks
Decon Viles

1708 100 to FEDEX. leave B103
AK FEDEX

#1-0 has
11.0

Jac Byrd JR

DAY 10

Wednesday 20 July 1994

(67)

0600 leave hotel

Break-fast (0.7 hr)

~~Get tea~~

Go to site 17 & B103 to get supplies for well development

0705 At 021-026 MW to develop well.

0715 Driller arrives

Begin developing well

0830 Go to store to get

A MASON JAR for charity picture

No MASON JARS AVAILABLE.

0852 Return to 021-026 MW

0924 Done w/ well development.

Go to B103 to set-up GC.

0931 At FEDEx to check on deliveries

• Pick-up 6 ice chests from Lab

• Refuse Acceptance of HAZCO PID

• Be AWARE of surroundings

Return to B103.

0943 leave FEDEx

~~Go to B103~~ JB

~~At B103~~ JB

Get ice.

0954 Stop at site 17 & drop off ice chests & ice.

1000 At B103

Set-up GC.

1030 Build 1 PPM & 100 ppb BTEX

STD's.

1046 Go to site 17 to give

Safety Mtg.

KP is not here. She is

meeting w/ basic personnel

to get clearance for

proposed drill sites.

1050 KP arrives.

1053 Safety Meeting.

JB, KP, RT, SS, BS.

• Weather nice. P.M. T-storms

• Be AWARE of surroundings

1055 Return to B103.

(69)

1058 AT B103

1218

017-018 BH

ALL ND's

1100 100 ppb BTEX STD.
1.3 Vs

129

$\frac{1.30 \phi mVs}{2 \phi} = 65 mVs$ Setting

DRILLERS / KP & RT ARE WAITING
for phone CO. to arrive &
approve drilling locations.

Set Min. Area to 80 mVs.
Set Library

100 ppb BTEX STD

CAL

1115 Air Blank.

Benzene

89 ppb

100 ppb

Go to Site 17 to get soil
samples

Toluene

72 ppb

80 ppb

1132 Prepare soil samples.

100 ppb BTEX STD

CAL

1140 017-018 BH

Benzene

149

100 ppb

2.0'-2.5'

Toluene

180

92 ppb

1150 017-018 BH

E-Benzene

197

89 ppb

4.5'-5.0'

MP-Xylene

197

165 ppb

1200 Go to Site 17 for soil
samples

Need to ERASE LIBRARY
& RECALIBRATE

1213 Back at B103
Prepare samples

7 miss read STUFFS. WILL
go ahead & RECALIBRATE

| | | | | | |
|------|--|------|---------------------------------------|-----|----------|
| 1309 | 100 ppb BTEX STD 2.0 VS → 100mV, setting Det Library | 1421 | 017-019 BH 5.0'-6.0' | 10g | ALL ND's |
| 1320 | AIR BLANK | 1431 | 017-019 BH 9.5'-10.0' | 10g | ALL ND's |
| 1330 | Goto Site 17. Sample Return to B103 Prepare sample. | 1442 | Goto Site 17 Get soil sample. | | |
| 1338 | 017-019 BH 1.5'-2.0' | 1445 | At B103 Prepare soil sample | | |
| 1348 | CALL M. Henson to find out about shipment of supplies that has not arrived will need to call him back | 1450 | 017-020 BH 2.0'-2.5' | 12g | ALL ND's |
| 1353 | Goto Site 17. Get soil samples | 1500 | Goto Site 17. Get soil samples | | |
| 1406 | Stop & gas-up car At B103 Prepare samples | 1507 | Return to B103 Prepare soil sample | | |
| | | 1514 | 017-020 BH 5.5'-6.0' | 10g | ALL ND's |

(73)

1525 100 ppb BTEX STD
Benzene 84 ppb
Toluene 85 ppb
E-Benzene 77 ppb
MP-Xylene 150 ppb

CAL
100 ppb
101 ppb
92 ppb
180 ppb

1718

leave base

Observe drillers has they
move barrels & load
equipment & leave site.

1536 Air blank

ALL ND's

1735

leave site 17.
lock gate

1545 017-020 BH
9.5'-10.0' 12g

ALL ND's

1800 AT hotel

1555 100 ppb BTEX STD
Benzene 102 ppb
Toluene 100 ppb
E-Benzene 88 ppb
MP-Xylene 171 ppb

CAL
100 ppb
99 ppb
87 ppb
169 ppb

1608 Air blank.

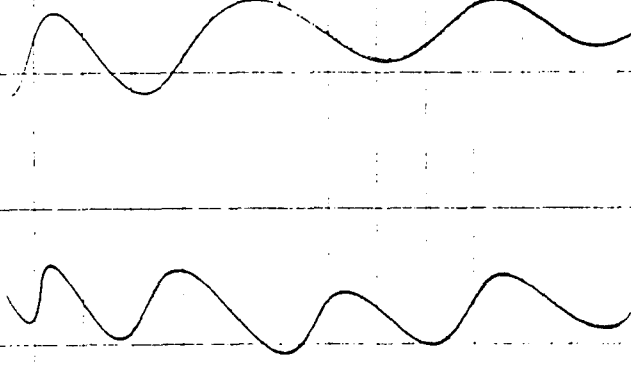
ALL ND's

1618 Shut-down GC.
Decon Viles.

1647 leave B103.
AT Site 17.
Aid in Site break-down

Free Byul ga

11.3 hrs



DAY 11

Thursday

21

July 1994

0630

leave hotel

break first

get ice

(0.5 hr)

0720

at B103

Set-up truck for hand augers.

0810

Go to Site 21 to meet
driller to move drums.

Out Site 21

- Move drums
- Put barrels at 4 MW's

0820

at Site 21. Waiting on
drillers to arrive.

0850

Drillers on Site. Begin
moving barrels.

0916

Find unmarked barrels.
Go to B103 to get paint
stick. Now are there.

0930

Back at Site 21. It is raining
heavily. Drillers are waiting
out rain.

(75)

1020

RAIN lets-up.

1022

not really. Drillers go to
yard to wait out rain

1023

Go to FEDEX to check on
delivery from Fisher-Seward

1033

Package is in. Go to
B103 to set-up GC for so
that it can warm up a
while

1046

Return to Site 21

1054

at Site 21. Waiting on
drillers.

1100

Drillers arrive

1101

- Safety Meeting
- Be aware around moving
vehicle
 - Be careful on wet slope w/
footing & rig.
 - Be careful w/ barrels in
air.

SB, JS, Paul

1245

Done moving barrels

(77)

Go to B103 to see if KP &
RT are done w/ hand
Augering.

1258 AT B103. No KP-RT.
~~wait on L~~

Go to Chalket to see if
they are having lunch

1303 They are not here.
Go to B103.

1309 AT B103. Waiting on KP-RT

1350-1345 KA-RT ARRIVE. They
have been rained out.

1355 CALL J. MORRIS. Discuss
future (2 week) plans for
TRAVEL to Hayward.

Prepare ice chests for
tomorrow's water
sampling

TRAIN RT in GE.

1535 Go to glove supplier
1612 Get gloves
1628 Go to Copier place
1645 Go to clothing store to get
mosquito nets

1712 Out hotel

10.2 hrs

Jan Byrd

DAY 12

79

FRIDAY 22 July 1994

0600

Leave hotel.

Breakfast (0.5 hr)

0652

Get ice

0658

On Base. (B103)

Load truck for water sampling.

0724

Go to Site 21 to set up for

water sampling

0734

At Site 21.

Set up to purge 021-009 MW for sampling

Purge 021-009 MW.

0840

Go to B103 to get vials for

GC analysis.

0900

Back at Site 21.

~~Call Air Products to get~~

~~Address to return air~~

~~box etc.~~

0908

Go to B103 to get more sample bottles

0924

At Site 21.

SAMPLE 021-009 MW

1005

Move to 021-010 MW. Purge

1045

Call Air Products & get Address.

Jack Brubaker

DAY 13

(81)

23 July 1994

Saturday

1125 Sample 021-010 MW
 1310 Purge 021-026 MW
 Purged clay. Temp., SpH, and conductivity have not stabilized
 1320 Pack-up stuff in truck so that we can break for lunch.
 Lunch: (O.B. hrs)
 1422 At BARR, to get key to site 18 for access over weekend.
 1426 Goto Site 21.
 1437 At Site 21. Sample 021-026 MW
 1500 Done AT 021-026 MW
 Purge & sample 021-014 MW
 1610 Done w/ P&S at 021-014 MW
 1630 leave site 21.
 Get ice for samples
 1641 AT B103.
 Pack ice chests
 1732 KP-RT go to FEDEX
 leave B103
 Lock up Site 17. It is locked.
 1552 AT hotel.

}} } 10.6 hrs
 J. B. Byrd

0600 leave hotel
 Breakfast (0.6 hr)
 Get ice
 0655 AT B103
 Pack truck for sampling
 Goto Site 17.
 0732 Set-up Decon and AT-13
 hand Auger 017-010 BH 15'-2.5'
 0745 Security arrives & questions our activities. Every thing OK.
 Continue site breakdown.
 0812 leave Site 17. Goto Site 18
 0828 AT Site 18.
 Hand Auger both sample locations
 Break-down.
 1000 KP-RT goto Site 21 to sediment sample.
 I goto B103 to set-up GC and analyze samples
 1018 AT B103.
 Set-up GC & prepare samples.
 MAKE 1 PM & 100 ppb BTEX STDS.

1055

100 ppb BTEX STD.

1.6 VS $\Rightarrow \frac{1.6 \text{ vs}}{2 \text{ ppb}} = 80 \text{ mVs}$

Set MIP AREA to 100 mVs

Set Library

AIR BLANK.

ALL ND's

1107

021-009 MW

10 mL

ALL ND's

1126

021-010 MW

10 mL

ALL ND's

1136

021-014 MW

10 mL

ALL ND's

1146

021-026 MW

10 mL

ALL ND's

1156

018-006 BH 2.5'

10g

ALL ND's

1206

100 ppb BTEX STD.

CAL

BENZENE

ppb

TOLUENE

ppb

E-BENZENE

ppb

MP-XYLENE

ppb

Needs new CALIBRATION.

1220

100 ppb BTEX STD.

1.5 VS \Rightarrow

100 mVs setting

1232

AIR BLANK

ALL ND's

1240

018-006 BH

ALL ND's

1.7'

10g

1250

017-010 BH

ALL ND's

1.5'-2.5'

10g

1300

018-007 BH

ALL ND's

2.5'

10g

* Something pegged out

chromatogram. Will reshoot

later.

1313

Go to Site 21 to see how

KP-RT ARE doing.

They ARE doing sampling

Swamp. Aid in Site Breakdown.

1341

Go to lunch.

1572

Back from lunch.

1525

Go to B103

At B103

Recalibrate GC.

1531

100 ppb BTEX STD.

1.2 VS \Rightarrow some VS setting

1543

AIR BLANK

ALL ND's

1554

021-004 SB

sediment

10g

1604

021-005 SB

sediment

10g

ALL ND's

(87)

FILL-UP CAR.

AT HOTEL

Take GC to AP's room

Done for day.

2:00

12.9 hrs

For Byrd

ERASE Library

100 ppb BTX STD

• 1.2 V_s ⇒ 50 mV's Seeks

Air blank

• ALL ND's

018-007 BH 0.8'-1.3' 10g

• Toluene 10 ppb

• E-Benzene 295 ppb

• O-Xylene 1590 ppb

018-007 BH 0.8'-1.3' 10g ZX dilution

• E-Benzene 166 ppb

• O-Xylene 921 ppb

100 ppb BTX STD

• Benzene 96 ppb

• Toluene 92 ppb

• E-Benzene 91 ppb

• mP-Xylene 179 ppb

• O-Xylene 91 ppb

Air blank

• ALL ND's

SHUT-DOWN GC.

PACK ALL GC equipment.

leave B103

CALC

100 ppb

96 ppb

94 ppb

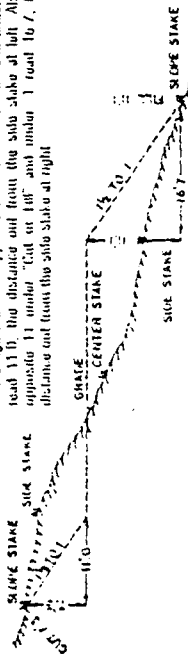
187 ppb

96 ppb

DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING

Roadway of any Width. Side Slopes 1½ to 1.

In the figure below opposite 7 under "Cut or Fill" and under 3 road 11.0, the distance out from the side stake at left "Abn." opposite 11 under "Cut or Fill" and under 1 road 17.0, the distance out from the side stake at right.



| b 1/2 ft | Distances out from Side of Shoulder Stake | | | | | | | | | | b 1/2 ft |
|----------------|---|------|------|------|------|------|------|------|------|------|----------------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 0 | 0.0 | 0.2 | 0.3 | 0.5 | 0.6 | 0.8 | 0.9 | 1.1 | 1.2 | 1.4 | 0 |
| 1 | 1.5 | 1.7 | 1.8 | 2.0 | 2.1 | 2.3 | 2.4 | 2.6 | 2.7 | 2.9 | 1 |
| 2 | 3.0 | 3.2 | 3.3 | 3.5 | 3.6 | 3.8 | 3.9 | 4.1 | 4.2 | 4.4 | 2 |
| 3 | 4.5 | 4.7 | 4.8 | 5.0 | 5.1 | 5.3 | 5.4 | 5.6 | 5.7 | 5.9 | 3 |
| 4 | 6.0 | 6.2 | 6.3 | 6.5 | 6.6 | 6.8 | 6.9 | 7.1 | 7.2 | 7.4 | 4 |
| 5 | 7.5 | 7.7 | 7.8 | 8.0 | 8.1 | 8.3 | 8.4 | 8.6 | 8.7 | 8.9 | 5 |
| 6 | 9.0 | 9.2 | 9.3 | 9.5 | 9.6 | 9.8 | 9.9 | 10.1 | 10.2 | 10.4 | 6 |
| 7 | 10.5 | 10.7 | 10.8 | 11.0 | 11.1 | 11.3 | 11.4 | 11.6 | 11.7 | 11.9 | 7 |
| 8 | 12.0 | 12.2 | 12.3 | 12.5 | 12.6 | 12.8 | 12.9 | 13.1 | 13.2 | 13.4 | 8 |
| 9 | 13.5 | 13.7 | 13.8 | 14.0 | 14.1 | 14.3 | 14.4 | 14.6 | 14.7 | 14.9 | 9 |
| 10 | 15.0 | 15.2 | 15.3 | 15.5 | 15.6 | 15.8 | 15.9 | 16.1 | 16.2 | 16.4 | 10 |
| 11 | 16.5 | 16.7 | 16.8 | 17.0 | 17.1 | 17.3 | 17.4 | 17.6 | 17.7 | 17.9 | 11 |
| 12 | 18.0 | 18.2 | 18.3 | 18.5 | 18.6 | 18.8 | 18.9 | 19.1 | 19.2 | 19.4 | 12 |
| 13 | 19.5 | 19.7 | 19.8 | 20.0 | 20.1 | 20.3 | 20.4 | 20.6 | 20.7 | 20.9 | 13 |
| 14 | 21.0 | 21.2 | 21.3 | 21.5 | 21.6 | 21.8 | 21.9 | 22.1 | 22.2 | 22.4 | 14 |
| 15 | 22.5 | 22.7 | 22.8 | 23.0 | 23.1 | 23.3 | 23.4 | 23.6 | 23.7 | 23.9 | 15 |
| 16 | 24.0 | 24.2 | 24.3 | 24.5 | 24.6 | 24.8 | 24.9 | 25.1 | 25.2 | 25.4 | 16 |
| 17 | 25.5 | 25.7 | 25.8 | 26.0 | 26.1 | 26.3 | 26.4 | 26.6 | 26.7 | 26.9 | 17 |
| 18 | 27.0 | 27.2 | 27.3 | 27.5 | 27.6 | 27.8 | 27.9 | 28.1 | 28.2 | 28.4 | 18 |
| 19 | 28.5 | 28.7 | 28.8 | 29.0 | 29.1 | 29.3 | 29.4 | 29.6 | 29.7 | 29.9 | 19 |
| 20 | 30.0 | 30.2 | 30.3 | 30.5 | 30.6 | 30.8 | 30.9 | 31.1 | 31.2 | 31.4 | 20 |
| 21 | 31.5 | 31.7 | 31.8 | 32.0 | 32.1 | 32.3 | 32.4 | 32.6 | 32.7 | 32.9 | 21 |
| 22 | 33.0 | 33.2 | 33.3 | 33.5 | 33.6 | 33.8 | 33.9 | 34.1 | 34.2 | 34.4 | 22 |
| 23 | 34.5 | 34.7 | 34.8 | 35.0 | 35.1 | 35.3 | 35.4 | 35.6 | 35.7 | 35.9 | 23 |
| 24 | 36.0 | 36.2 | 36.3 | 36.5 | 36.6 | 36.8 | 36.9 | 37.1 | 37.2 | 37.4 | 24 |
| 25 | 37.5 | 37.7 | 37.8 | 38.0 | 38.1 | 38.3 | 38.4 | 38.6 | 38.7 | 38.9 | 25 |
| 26 | 39.0 | 39.2 | 39.3 | 39.5 | 39.6 | 39.8 | 39.9 | 40.1 | 40.2 | 40.4 | 26 |
| 27 | 40.5 | 40.7 | 40.8 | 41.0 | 41.1 | 41.3 | 41.4 | 41.6 | 41.7 | 41.9 | 27 |
| 28 | 42.0 | 42.2 | 42.3 | 42.5 | 42.6 | 42.8 | 42.9 | 43.1 | 43.2 | 43.4 | 28 |
| 29 | 43.5 | 43.7 | 43.8 | 44.0 | 44.1 | 44.3 | 44.4 | 44.6 | 44.7 | 44.9 | 29 |
| 30 | 45.0 | 45.2 | 45.3 | 45.5 | 45.6 | 45.8 | 45.9 | 46.1 | 46.2 | 46.4 | 30 |
| 31 | 46.5 | 46.7 | 46.8 | 47.0 | 47.1 | 47.3 | 47.4 | 47.6 | 47.7 | 47.9 | 31 |
| 32 | 48.0 | 48.2 | 48.3 | 48.5 | 48.6 | 48.8 | 48.9 | 49.1 | 49.2 | 49.4 | 32 |
| 33 | 49.5 | 49.7 | 49.8 | 50.0 | 50.1 | 50.3 | 50.4 | 50.6 | 50.7 | 50.9 | 33 |
| 34 | 51.0 | 51.2 | 51.3 | 51.5 | 51.6 | 51.8 | 51.9 | 52.1 | 52.2 | 52.4 | 34 |
| 35 | 52.5 | 52.7 | 52.8 | 53.0 | 53.1 | 53.3 | 53.4 | 53.6 | 53.7 | 53.9 | 35 |
| 36 | 54.0 | 54.2 | 54.3 | 54.5 | 54.6 | 54.8 | 54.9 | 55.1 | 55.2 | 55.4 | 36 |
| 37 | 55.5 | 55.7 | 55.8 | 56.0 | 56.1 | 56.3 | 56.4 | 56.6 | 56.7 | 56.9 | 37 |
| 38 | 57.0 | 57.2 | 57.3 | 57.5 | 57.6 | 57.8 | 57.9 | 58.1 | 58.2 | 58.4 | 38 |
| 39 | 58.5 | 58.7 | 58.8 | 59.0 | 59.1 | 59.3 | 59.4 | 59.6 | 59.7 | 59.9 | 39 |
| 40 | 60.0 | 60.2 | 60.3 | 60.5 | 60.6 | 60.8 | 60.9 | 61.1 | 61.2 | 61.4 | 40 |



"Rite in the Rain"
ALL-WEATHER WRITING PAPER

Name *Ruben S. Torres*

Address *8235 Korte Rector*
4100 New Loop 410 Ste 230
Phone *(210) 731-0000*

Project *Duluth AN 63*
July 11- July 28, 1984

"Rite in the Rain" - a unique all-weather writing surface created to shed water and to enhance the written image. Makes it possible to write sharp, legible field data in any kind of weather.

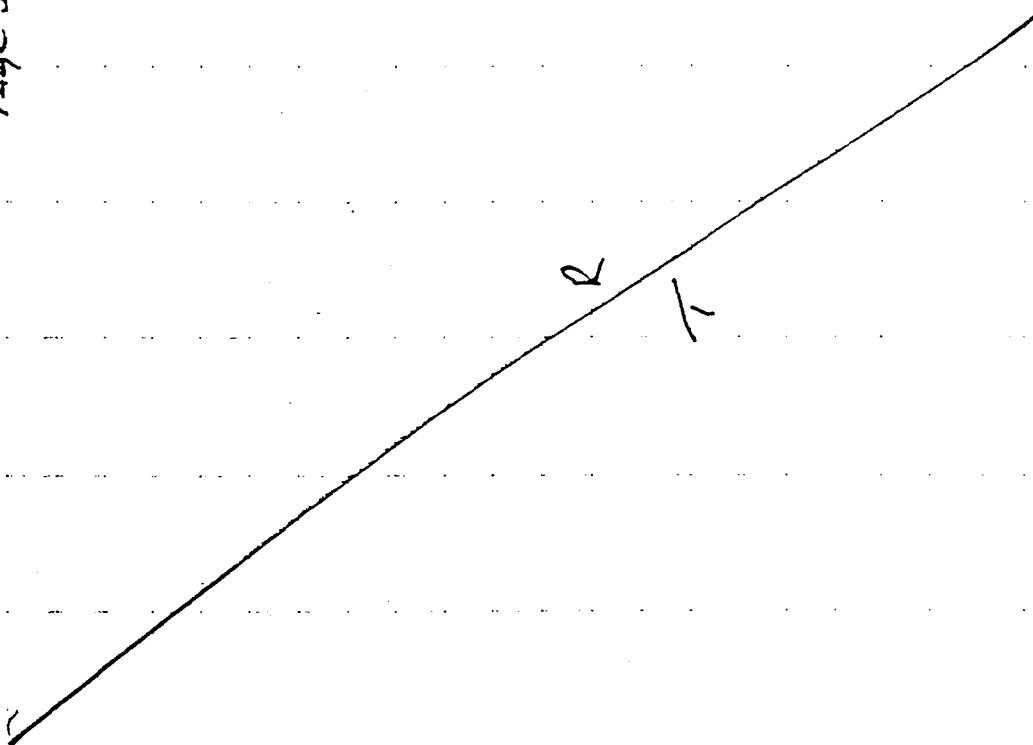
a product of

J. L. DARLING CORPORATION
TACOMA, WA 98421-3696 USA

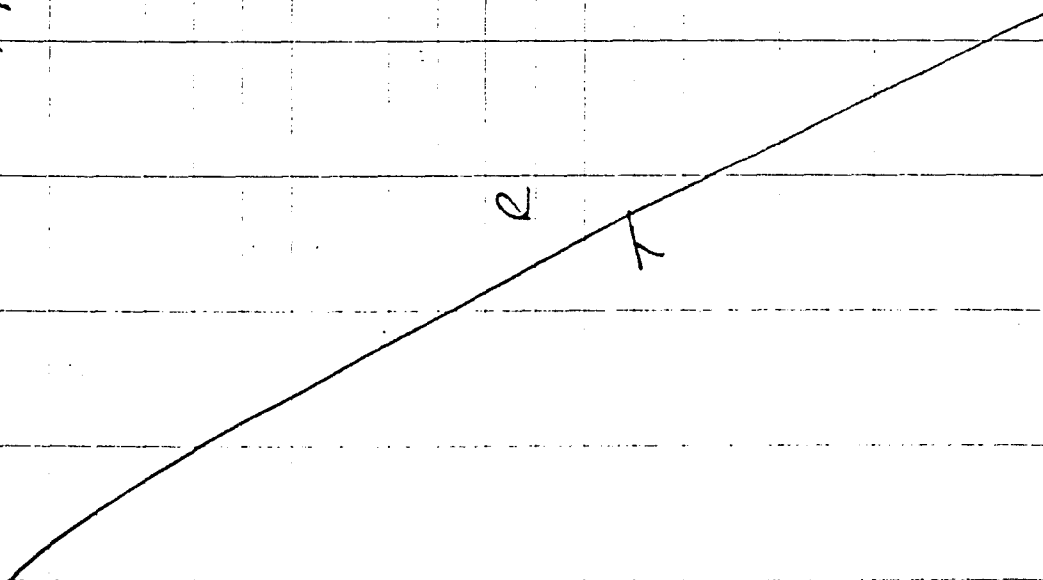
A hand-drawn graph on lined paper. A smooth, upward-sloping curve is drawn, starting from the bottom left and curving towards the top right. The curve is labeled with a handwritten 'R' in the middle. A point on the curve is marked with a small cross, and a short vertical line segment is drawn through this point, intersecting the curve.

[illegible]

Page 3



Page 2



7-12-94
 0602 Leave Hotel To go
 Eat Breakfast
 0700 Go To Site 21 To Set
 up Decon Area.

0710 Arrive on Site

Weather

Breezy / Warm

Low 60's

High mid 80's

0730 R. Torres + J. Byrd Begin

To Set Up Decon Area

Put The Vioqueen on Tables

+ Tape Them Up.

0815 R. Torres + J. Byrd

was Sees Skeets +

Cap. Huntington

0900 Twin City clearing

Crew Arrive on Site

7-12-94

Page 6

0930 R. Torres Calibrates
The LEL MX 251
SN# 9408279-099
PENTANE 0.75% C5 H 12

A
Crew Begins To Break Hole
021-025 BH
2 Sights Spl. 750m 1/2 ft. to 2 1/2 ft
0946 R. Torres, Steve STELL,
Jim Sargestad, R. J. Byrd,
K. Pritchard, J. Moeck's start safety meeting
Drilling 12-15 ft
Steel Toe Boots, hard hat, vest, ear
plugs. N

A
0950 R. Torres checks water level
13.20 water level
then decors water level
men # 21-013 PM

A
1010 R. Torres decors SPCH spoon.

1050 R. Torres Takes
P.D. Reading 2.3 ppm breathing
zone
LEL 6.9 ppm
breath

LEL
OK 20.9%

7-12-94

Page 7

1030 P.D. Reading
LEL OK 20.9

1150 R. Torres decors spoon

1205 R. Torres Takes P.D. Reading
LEL Reading 021-023 BH

P.D. Reading Breath 37.5
Breathing Zone 2.5
LEL OK 21.0

1230 R. Torres Takes P.D.
Reading + LEL.

P.D. BH 16.6 Breathing Zone 2.5
LEL OK 20.9
LEL 000

1310 R. Torres status of
new decors Allen

1430 R. Torres decors
BRASS sleeves

7-12-94

1503 R. Torres decons Beas
Sleeves / SpCJ Spoon.

1531 R. Torres Takes P.d Reading

021-022
BH

P.d Breathing zone 2.1 ppm
Bole Bole 13.9 ppm

LeL 000

OX 20.9% R

1549 R. Torres decons SpCJ

Spoon R

1625 R. Torres decons Beas
Sleeves and chains decon
area get ready for
Tomorrow.

1700 work is done for the
day.

1721 Go to hangar 103 + put ice
on the engine's

1745 Go to Federal Express

Quin A. Jones

7-13-94

0600 Capt. Hotel To go eat
Breakfast R

Weather T
partly cloudy
COSC R

Low T
50's
High Low 40's
R

0702 Arrive on site 21
Begin to get up decon area

0730 J. Byrd Conducts SpCJ
Meeting R

0743 Decon Crew begins to
deall R

0941 R. Torres Takes P.d
Reading + LeL R

P.d Reading Breathing zone 2.5 ppm
LeL 000
OX 20.9
Bole 1.8

0431 K. looked around split

SPDN

1025 R. TORRES

Page 8

✓ LEL SN# 94032 79.099 P.I. Rearing

P.I. Breeding Zone 2.1 Boachok 2.3

LEL 000 R OX 2.9

P.I. SN# 98961-282 sub 1

ENVIRONMENTAL INSTRUMENTS DETERMINATOR

1105 DECM Activities going on
 1207 RENT FOR Lunch 12

1315 Arrive AT SITE 21

1328 Decon Activities going on

1416 Take LEL and P.I. Breeding Zone. R

Breeding Zone 1.8 Boachok 2.9 LEL 000 OX 20.9

1508 Decon Activities going on. R

1608 Begin To Break down decon area. AREA.

AT 1645
 1645 Go To hangar 103
 Begin To double dig
 LEL and Trip Blanks.

1750 Go To Federal Express To deliver tapes.

1840 Go To Site 17 To START OUT AREA. R

1908 Go TO SITE C

Ruben S. Torres

R. Torrey
7-14-94

0600 Leave Hotel

0905 Arrive at Site 21

Begin to set up decap

Area

R

T

0730 Calibrate P.D. SN # 48961-182

P.D. was calibrated using proper method on 7-12-94

and 7-13-94. R

T

Calibrated LEL SN # 9405279.044

0736 weather

Rainy and Cool

High 60's

Low 50's

R

T

Pulling down sleeves on site.

0745 Leggett and Freese meeting
J. Byrd, R. Tades, K. T. Ford

R

T

R

T

Page 12

0857 7-14-94 R. TOPLOS TAKES

1.8 Breathing Zone

Breath. 1.5

LEL 000 OK 20.9%

0905

121025 Decom Activities Continue

1023 R. TOPLOS TAKES

Breathing Zone + LEL

Breathing Zone 1.2

LEL 000 R OK 20.9%

+

1055 Decom Activities going on.

1116 Taking Breathing Zone and LEL

LEL 000 OK 20.9%

Breathing Zone 1.4

R

1142 Decomming Brass screws

+ Split Spool

Breaking Down for lunch

1235 went to lunch

Page 13

7-14-94

1402 Arrive at Site 21

1428 Decom Activities going on

1518 Take Breathing Zone 1.6

OK 20.9

LEL 000

1605 Begin to Break down

Decom Area

1649 Label Drum Burels

1726 Go to Federal Express

1750 Go to Hotel

John S. Jones

R

T

R. Tollos
7-15-94

Page 14

0600 Leave Hotel

0710 Arrive on site #21

Set up Decon Area

Calibrated P.D. SNH

Model Determinator

Lot # 408302-412503-48

ISO Surv Lene 100 ppm

Calibrated LEL Industrial Scientific

Lot # 4403279-0941046L Mx251

OK 20.9%

0811 Have Safety and Health
Meeting.

0840 Decon Activities going
on.

0921 Take Breathing Zone with
P.D. .5

LEL 000 OX 20.9%

0943 Decon Activities going
on.

1020 Decon Brass Shovel

Decon Cap 2.

1120 Take P.D. Breathing Zone

and LEL Readings

Breathing Zone .8

LEL 000

OX 20.9%

Page 15

R. Torres
7-15-94

1207 Dr.illers Begin Construction
of well.

1303 Take Breathing Zone + LEL.
Breathing Zone .8

LEL 000. OZ 20.9%
Break For Lunch.

1403 Return To Site To 21

Clean Up Decon Area and
move Equipmt To Hangar 103.

1556 Arrive at Hangar

1614 Do Rinse at Blanks.

1648 Go To Fed Ex To

Deliver Samples

Quinn L. Jordan

R. Torres

7-18-94

Page 17

0600 Leave Hotel

0650 Arrive at Hangar 103.

0715 Begin To Cage Up

Truck

0735 Calibrated P.d SN# 48961-282

Hotel Determinative Environment 42

Intermittent

LOT # 408302-412503-48

LEL SN# 9403279-099

0816 SET Up Decon Area on

Site # 17

0910 Decon Brass Sleeves and

Cap's.

weather

Warm / Partly Cloudy

High mid 70's

Low Low 60's.

1034 Take LEL and Breathing

Zone

Breathing Zone .6

LEL 000 OX 20.9%

1116 Decon Activities going

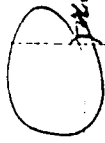
on

1236 Take Lunch Break.

R. Torres

7-18-94

- 1314 SHOT DOWN DOWNPOUR OF
RAIN AND LIGHTENING.
1528 STOP WORKING. CHAIN UP CLEAN
AREA + GO TO HANGAR
1614 UNLOAD TRUCK INTO HANGAR
DO EQUIPMENT REINSTATES.
1715 GO TO FUEL EX AND OIL LINE
SAMPLES.
1731 G. TO HANGAR.

 R. Torres

Page 18

R. Torres

7-19-94

Page 19

- 0600 LEAVE HOTEL
0658 ARRIVE AT HANGAR 103
BEGIN TO LOAD UP TRUCK
WEATHER
RAINY AND COOL
LOW MID 50'S
HIGH HIGH 60'S
0734 FINISHED LOADING UP THE
TRUCK
0738 ARRIVE ON SITE # 17
0750 ATTEND SAFETY AND HEALTH
MEETING CAL-BATED P. 4 LEL
0932 RECON ACTIVITIES GOING
ON
0920 TAKE BREATHING ZONE AND
LEL.
LEL 0000 OX 20.9%
BREATHING ZONE .6
1002 RECON ACTIVITIES GOING
ON
1048 TAKE LEL + BREATHING ZONE
OX 20.9%
LEL 000.
BREATHING ZONE : 3

7-19-94

Page 20

1110 Begin To Rest down
Decom Areas.
Drillers are decomming their
Augers.
1130 Go To Hangar 103
1210 Go To Cunch
1300 Arrive AT Site 17
Begin To Sort up decom
1330 Begin Decom Activities
1348 Take Breathing Zone and
CEL
Breathing Zone .60
CEL 000 OK 20.5%
1410 Decom Activities getting
on
1506 Shut down for the
day.
1518 Begin To Rest down more
the day.
1546 Leave Site # 17
To go To Hangar 103.
1610 Do RINSE ATTES
1705 Go To FED EX

12. 1000000

Page 21

7-19-94

1751 Go To Hotel

Richard H. Jones

R
T

K. Torres

7-20-94

Page 22

0600 Leave Hotel

0658 Arrive at Site # 21

HW 021-026

Weather Rety Cloudy

Low 50's

High Mid 70's

0715 Calciteate P.d and

CEL/AMX / did reading 0.00

Decom Bailler

0812 Time started Bailing

Gallons removed

1.6

Temp

43.6

ph

5.66

Conc

596

WL 7.92 FT

BH Total depth 20.23 ft

Volume = (0.0408) (2.23)²

Well = 294 (0.0408)

Cloudy

Cloudy

0915 Decom Bailler and Rope

0931 Leave Site 021 well

Bailed Dry

K. Torres

7-20-94

Page 23

1018 Decom Activities going on

and set up decom pad

1048 Decom Activities going on

1125 Take Breathing Zone

and CEL

Breathing Zone 20.8% O₂

CEL 000 O₂ 20.8%

1143 Decom Activities going on

1230 Go to Lunch

1313 Arrive on Site 17

1323 Decom Activities going on

1345 Take Breathing Zone

and CEL

Breathing Zone - O

CEL 000 O₂ 20.9%

1406 Decom Activities going on

1435 Take Breathing Zone and

CEL Reading

Breathing Zone - O

CEL 000 O₂ 20.9%

1444 Decom Activities going on

1504

R. Torres

17-20: 94

Page 24

1536 Begin To Pack down
Decom Areas and put things
in the truck

1549 Put ~~into~~ RT Do Riverettes
Samples.

1628 Begin To Double bag
ice and put them in ice
chest.

1720 Go To FEO EX
1748 Go To HOTEL

John S. Torres

R
T

R. Torres

7-21: 94

Page 25

0630 Leave Hotel

0800 Arrive AT ~~AT~~ SITE #17
and meet SUR.

0831 Arrive AT SITE #18

0840 Begin To Set Up Decom
Area

0900 Decom Activities going on
Put Begos sleeves, Caps, Auger,
and T in ALCONOX then
put it in Rinse basket,
Put Di water, then methanol
and let them dry.

Low

Low 50's

High

Low 70's

Rainy and mostly cloudy

0918 Calibrated p.d.

1030 Rainy weather. Beke

down Decom Set up.

1048 Go To Hanger

Leave for Hotel

1318 Go to Alonding Ton

and Pick up Di water.

1416 Arrive at Hanger 103

R. Torres

7-21-94

1421 Prepare

Staples

1538 Leave

Go and buy Supplies

Page 26

Bottles for water

Leave 103 and

Steven L. Torres

R. Torres

7-22-94

0600 Leave Hotel

0658 Arrive AT Haysak 103

0738 Begin To Set Up Receptor

Area AT SITE 21

0746 Cal: heated P.D

0758 Took Reading FROM MW 021-

009

0815 Start PAGING MW 021-009

0821 Start Taking ph level,

Con. Temp.

0948 Take WATER level measure -

most Acc Total Depth

1037 Take Temp. Con. & Ph

level readings.

weather

Partly Cloudy

High mid 70's

Low mid 50's

Chance of Showers.

1116 Take P.D Reading of MW

0.00

1205 Take ph, Con. Temp readings

1300 Stop PAGING

1301 Go To Lunch

N. 1, 00000

7-23-54

1422 Arrive at Site # 17 T.

1437 Get Key for Site 18

Arrive at Site 21

Take water samples.

1510 Take 1st Reading of NW 021-014

Reading 0.00

Take water level and

water depth.

1546 Take ph. con. Temp of

burying well

1612 Take water samples

1649 Begin to load up Decon

Area.

1703 Leave Site 021 and go to

camp. 103

1718 Double Bag Ice

1739 to deliver samples to

Express.

K. TORRES

7-23-54

0600 Leave Hotel

0658 Arrive at Airport 103
Begin to load up truck
with supplies

weather

Low low SW's

High mid 70's

Partly Sunny

0726 Arrive at Site 48 or 17

0743 Begin to set up Decon

Area

0809 Decon Auger

0815 Leave Site 48 or 17

0830 Arrive on Site 18

0844 Begin to set up Decon

Area

0901 Decon Activities going on

0948 Begin to break down Decon

Area

1001 Leave Site 18

1021 Arrive on Site 21

1031 Begin to set up Decon

Area

1118 Begin Taking Sediment

Samples.

R. Torres

7-23-94

1318 Finished Sampling.

1331 started to pack supplies in truck

1340 Go to lunch

1526 Arrive at Haysak 103

1535 Begin to unload supplies at the Haysak

1556 Double bag ice

1630 Go to feed Ex and deliver

Supplies

1649 Go back to Haysak 103

1853 Go to K5721

Ruben S. Torres

R. Torres ET

7-24-94 17-25-94

0620 Leave Hotel

weathered

low 50's

High mid 60's

Breezy

0720 Arrive AT Haysak 103

Begin to load and package

Supplies to be shipped out.

0823 leave Haysak 103

0831 Arrive AT Site 21

0938 Begin to unload supplies

0850 Recon Activities going on

0930 Begin to Package

1028 Packaging Activities going on

DN

1146 Take water levels

1206 Put Supplies in Truck

1220 Go to lunch

1308 Arrive AT Site 21

1349 Go to Site 18

1358 Arrive AT Site 18

1404 Take water levels & Total

Depth.

1435 Do Pinsetttes and Field

Books.

R. TORRES
7-23-54

1508 Leave Site 18

1527 Arrive AT SITE 17 and
do water checks

1616 Leave Camp 103 To go
drop off 4.11 bottles AT
building 2410.

1718 Go To Camp 103 and load
up Aqual and Big box and
Ice Chest.

1739 Go To feed box To
Drop off Ice Chest and
Equipment going to Nazco.

1817 Go To Camp To move table
and clean up.

1846 Go To Hotel

Robert S. Lewis

R. TORRES
7-26-54

1415 Arrive AT SITE 21 To
dispose of soil samples in
55 gal. drums.

1511 Take water leave/s AT
SITE 21

1542 Arrive AT SITE 17.
Label Barrels and dispose
of soil samples

1611 Leave SITE 17. Lock the
gate

1613 Arrive AT Camp 103
and clean up site

1619 Leave Camp 103.

1628 Arrive SITE 21 and
take p. CTUROS.

1640 Leave SITE 21

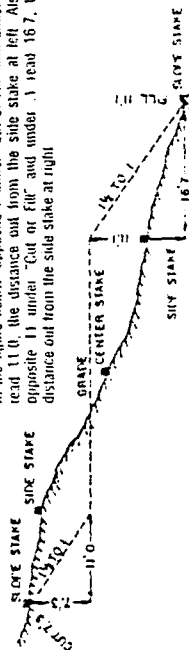
1642 Arrive AT Airport.

Robert S. Lewis

DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING

Roadway of any Width. Side Slopes 1½ to 1.

In the figure below opposite 7 under "Cut or Fill" and under 3 opposite 11 under "Cut or Fill" and under 1 read 16.7, the distance out from the side stake at right. Also, opposite 11 under "Cut or Fill" and under 1 read 16.7, the distance out from the side stake at left. Also,



| Distance out from Side of Shoulder State | | | | | | | | | | | ft. | |
|--|------|------|------|------|------|------|------|------|------|----|-----|--|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | |
| 0 0 | 0 2 | 0 3 | 0 5 | 0 6 | 0 8 | 0 9 | 1 1 | 1 2 | 1 4 | 0 | 1 | |
| 1 5 | 1 7 | 1 8 | 2 0 | 2 1 | 2 3 | 2 4 | 2 6 | 2 7 | 2 9 | 1 | 2 | |
| 3 0 | 3 2 | 3 3 | 3 5 | 3 6 | 3 8 | 3 9 | 4 1 | 4 2 | 4 4 | 2 | 3 | |
| 4 5 | 4 7 | 4 8 | 5 0 | 5 1 | 5 3 | 5 4 | 5 6 | 5 7 | 5 9 | 3 | 4 | |
| 6 0 | 6 2 | 6 3 | 6 5 | 6 6 | 6 8 | 6 9 | 7 1 | 7 2 | 7 4 | 4 | 5 | |
| 7 5 | 7 7 | 7 8 | 8 0 | 8 1 | 8 2 | 8 4 | 8 6 | 8 7 | 8 9 | 5 | 6 | |
| 9 0 | 9 2 | 9 3 | 9 5 | 9 6 | 9 8 | 9 9 | 10 1 | 10 2 | 10 4 | 6 | 7 | |
| 10 5 | 10 7 | 10 8 | 11 0 | 11 1 | 11 3 | 11 4 | 11 6 | 11 7 | 11 9 | 7 | 8 | |
| 12 0 | 12 2 | 12 3 | 12 5 | 12 6 | 12 8 | 12 9 | 13 1 | 13 2 | 13 4 | 8 | 9 | |
| 13 5 | 13 7 | 13 8 | 14 0 | 14 1 | 14 3 | 14 4 | 14 6 | 14 7 | 14 9 | 9 | 10 | |
| 15 0 | 15 2 | 15 3 | 15 5 | 15 6 | 15 8 | 15 9 | 16 1 | 16 2 | 16 4 | 10 | 11 | |
| 16 5 | 16 7 | 16 8 | 17 0 | 17 1 | 17 3 | 17 4 | 17 6 | 17 7 | 17 9 | 11 | 12 | |
| 18 0 | 18 2 | 18 3 | 18 5 | 18 6 | 18 8 | 18 9 | 19 1 | 19 2 | 19 4 | 12 | 13 | |
| 19 5 | 19 7 | 19 8 | 20 0 | 20 1 | 20 3 | 20 4 | 20 6 | 20 7 | 20 9 | 13 | 14 | |
| 21 0 | 21 2 | 21 3 | 21 5 | 21 6 | 21 8 | 21 9 | 22 1 | 22 2 | 22 4 | 14 | 15 | |
| 22 5 | 22 7 | 22 8 | 23 0 | 23 1 | 23 3 | 23 4 | 23 6 | 23 7 | 23 9 | 15 | 16 | |
| 24 0 | 24 2 | 24 3 | 24 5 | 24 6 | 24 8 | 24 9 | 25 1 | 25 2 | 25 4 | 16 | 17 | |
| 25 5 | 25 7 | 25 8 | 26 0 | 26 1 | 26 3 | 26 4 | 26 6 | 26 7 | 26 9 | 17 | 18 | |
| 27 0 | 27 2 | 27 3 | 27 5 | 27 6 | 27 8 | 27 9 | 28 1 | 28 2 | 28 4 | 18 | 19 | |
| 28 5 | 28 7 | 28 8 | 29 0 | 29 1 | 29 3 | 29 4 | 29 6 | 29 7 | 29 9 | 19 | 20 | |
| 30 0 | 30 2 | 30 3 | 30 5 | 30 6 | 30 8 | 30 9 | 31 1 | 31 2 | 31 4 | 20 | 21 | |
| 31 5 | 31 7 | 31 8 | 32 0 | 32 1 | 32 3 | 32 4 | 32 6 | 32 7 | 32 9 | 21 | 22 | |
| 33 0 | 33 2 | 33 3 | 33 5 | 33 6 | 33 8 | 33 9 | 34 1 | 34 2 | 34 4 | 22 | 23 | |
| 34 5 | 34 7 | 34 8 | 35 0 | 35 1 | 35 3 | 35 4 | 35 6 | 35 7 | 35 9 | 23 | 24 | |
| 36 0 | 36 2 | 36 3 | 36 5 | 36 6 | 36 8 | 36 9 | 37 1 | 37 2 | 37 4 | 24 | 25 | |
| 37 5 | 37 7 | 37 8 | 38 0 | 38 1 | 38 3 | 38 4 | 38 6 | 38 7 | 38 9 | 25 | 26 | |
| 39 0 | 39 2 | 39 3 | 39 5 | 39 6 | 39 8 | 39 9 | 40 1 | 40 2 | 40 4 | 26 | 27 | |
| 40 5 | 40 7 | 40 8 | 41 0 | 41 1 | 41 3 | 41 4 | 41 6 | 41 7 | 41 9 | 27 | 28 | |
| 42 0 | 42 2 | 42 3 | 42 5 | 42 6 | 42 8 | 42 9 | 43 1 | 43 2 | 43 4 | 28 | 29 | |
| 43 5 | 43 7 | 43 8 | 44 0 | 44 1 | 44 3 | 44 4 | 44 6 | 44 7 | 44 9 | 29 | 30 | |
| 45 0 | 45 2 | 45 3 | 45 5 | 45 6 | 45 8 | 45 9 | 46 1 | 46 2 | 46 4 | 30 | 31 | |
| 46 5 | 46 7 | 46 8 | 47 0 | 47 1 | 47 3 | 47 4 | 47 6 | 47 7 | 47 9 | 31 | 32 | |
| 48 0 | 48 2 | 48 3 | 48 5 | 48 6 | 48 8 | 48 9 | 49 1 | 49 2 | 49 4 | 32 | 33 | |
| 49 5 | 49 7 | 49 8 | 50 0 | 50 1 | 50 3 | 50 4 | 50 6 | 50 7 | 50 9 | 33 | 34 | |
| 51 0 | 51 2 | 51 3 | 51 5 | 51 6 | 51 8 | 51 9 | 52 1 | 52 2 | 52 4 | 34 | 35 | |
| 52 5 | 52 7 | 52 8 | 53 0 | 53 1 | 53 3 | 53 4 | 53 6 | 53 7 | 53 9 | 35 | 36 | |
| 54 0 | 54 2 | 54 3 | 54 5 | 54 6 | 54 8 | 54 9 | 55 1 | 55 2 | 55 4 | 36 | 37 | |
| 55 5 | 55 7 | 55 8 | 56 0 | 56 1 | 56 3 | 56 4 | 56 6 | 56 7 | 56 9 | 37 | 38 | |
| 57 0 | 57 2 | 57 3 | 57 5 | 57 6 | 57 8 | 57 9 | 58 1 | 58 2 | 58 4 | 38 | 39 | |
| 58 5 | 58 7 | 58 8 | 59 0 | 59 1 | 59 3 | 59 4 | 59 6 | 59 7 | 59 9 | 39 | 40 | |
| 60 0 | 60 2 | 60 3 | 60 5 | 60 6 | 60 8 | 60 9 | 61 1 | 61 2 | 61 4 | 40 | 41 | |

Name: _____

Address _____

Phone

Project

"Write In the Rain"—a unique all-weather writing surface created to shed water and to enhance the written image. Makes it possible to write sharp, legible field data in any kind of weather.

a product of

J. L. DARLING CORPORATION
TACOMA, WA 98421-3696 USA

| | | | | |
|----|---------|---|------|--|
| 45 | 11/4/94 | Arrived at Huntington Engineering and Environment to pick up the following shipped from the official San Antonio office: • hand-aids, etc. • human services, • Public Library, • 1 paid notebook, and • new digital (ampler), acquired will be of petroleum grade methanol and there 55 gallons demon were delivered to site 21 at 11:00 ~160000 | 1010 | 10/4/94 (3) Departed from Ireland EXP 62 (7) bytes: (2) bytes P.I.D. & water level indicator (also Hydr.) from CE. (4) bytes lectern & sample bottles from SP (1) box for Huntington. I & E Called John Morris (CPT-14) to give status of Dubuich project. Called Paul Wheeler (ANLGR) to provide status of Dubuich project → left message on voice mail. |
| | | | 1100 | Picked up keys to Hanger 103 from Capt. Steven Wahrnawitz. Gave him our pager number. AP arrived at Hanger 103 to unload supplies. Arrived at DRMO Bldg. to pick up keys to gate at 1514 to from Sue Gwy. Picked Kathryn Pickett |
| | | | 1130 | |

| | | | |
|----------|---|---|-----|
| (4) | 10/4/94 | 10/4/94 | (5) |
| 146 | Payd by Capt. Steven Watson. 1000000. to arrange meeting for band at the Chubert in the same room, N.W. dinner at Phalad for lunch Shipped for bagged and ice. | allow to air dry club wings in aluminum bag (Shiny side out). 1525 Collected 021-006512 11) 2.5" VDC (SW 8240/100) Sieve / SVOC (SW 8270/100) Sieve / TPH (USEPA 418.1) Post (SW 8280/100) 1545 Collected 021-005502 11) 2.5" X5" VDC (SW 8240/100) Sieve / SVOC (SW 8270/100) Sieve / TPH (USEPA 418.1) Post (SW 8280/100) 1600 Collected 021-007502 11) 2.5" X5" VDC (SW 8240/100) Sieve / SVOC (SW 8270/100) Sieve / TPH (USEPA 418.1) Post (SW 8280/100) 1625 Collected 021-004512 11) 2.5" X5" VDC (SW 8240/100) Sieve / SVOC (SW 8270/100) Sieve / TPH (USEPA 418.1) Post (SW 8280/100) 1650 Collected 021-007512 11) 2.5" X5" VDC (SW 8240/100) Sieve / SVOC (SW 8270/100) Sieve / TPH (USEPA 418.1) Post (SW 8280/100) 1675 Collected 021-004512 11) 2.5" X5" VDC (SW 8240/100) Sieve / SVOC (SW 8270/100) Sieve / TPH (USEPA 418.1) Post (SW 8280/100) 1690 Collected 021-007512 11) 2.5" X5" VDC (SW 8240/100) Sieve / SVOC (SW 8270/100) Sieve / TPH (USEPA 418.1) Post (SW 8280/100) | |
| 150 | 10/4/94 | 10/4/94 | (5) |
| 255 | 10/4/94 | 10/4/94 | (5) |
| 375 | 10/4/94 | 10/4/94 | (5) |
| 400-1510 | 10/4/94 | 10/4/94 | (5) |
| 1510 | 10/4/94 | 10/4/94 | (5) |

10/4/94

Deposited Site 11
Recompacted bedrock

021-0065D2
021-0055D2
021-001A5D1
021-0015D2
021-0045D2

m/mSD

to 1.0000 1.0000 to
ship to SCL
in Bill No. 0912896493
Top blank included

GA/46
Sample

Returned to Best Western
Downtown Hotel

~~10/5/94~~

X Kelly Patrick

10/5/94

Wednesday

Weather: cloudy, sun, calm

8:00-9:30

Made numerous calls
John Pearson for status;
Sharon Wyatt to call;
ABF Freight System to
arrange shipment from
Greene to San Antonio to
Billy Mitchell or Salt
Lake City; Pat Hollenbeck
about project reports;
Northwest on flight
arrangements; ^{Angela}
Wilson about mobile
phone problem.

Departed Best Western?

Hotel - Kathryn Patrick

OPTECH Jeff Blunt

Arrived at VBRMC

Bldg. to inform Jim

Carey that we working?

will be collecting soil

samples from Site 11.

Arrived at Hanger 103 to

pick up supplies.

Kathy Patrick

1005

1000

930

12/14

Quoted at Washington
improving a long
in common with the
of the people's
distance will not be
opposed with any
available money they
will soon it later the
with.

arrived at daylight
 followed by a crowd of
 to the town and
 from daylight
 followed by

2000
 1000
 500
 250
 125
 62.5
 31.25
 15.625
 7.8125
 3.90625
 1.953125
 0.9765625
 0.48828125
 0.244140625
 0.1220703125
 0.06103515625
 0.030517578125
 0.0152587890625
 0.00762939453125
 0.003814697265625
 0.0019073486328125
 0.00095367431640625
 0.000476837158203125
 0.0002384185791015625
 0.00011920928955078125
 0.000059604644775390625
 0.0000298023223876953125
 0.00001490116119384765625
 0.000007450580596923828125
 0.0000037252902984619140625
 0.00000186264514923095703125
 0.000000931322574615478515625
 0.0000004656612873077392578125
 0.00000023283064365386962890625
 0.000000116415321826934814453125
 0.0000000582076609134674072265625
 0.00000002910383045673370361328125
 0.000000014551915228366851806640625
 0.0000000072759576141834259033203125
 0.00000000363797880709171295166015625
 0.000000001818989403545856475830078125
 0.0000000009094947017729282379150390625
 0.00000000045474735088646411895751953125
 0.000000000227373675443232059478759765625
 0.0000000001136868377216160297393798828125
 0.00000000005684341886080801486968994140625
 0.000000000028421709430404007434844970703125
 0.0000000000142108547152020037174224853515625
 0.00000000000710542735760100185871124267578125
 0.000000000003552713678800500929355621337890625
 0.0000000000017763568394002504646778106689453125
 0.00000000000088817841970012523233890533447265625
 0.000000000000444089209850062616169452667236328125
 0.0000000000002220446049250313080847263336181640625
 0.00000000000011102230246251565404236316680908203125
 0.000000000000055511151231257827021181583404541015625
 0.0000000000000277555756156289135105907917022705078125
 0.00000000000001387778780781445675529539585113525390625
 0.000000000000006938893903907228377647697925567626953125
 0.0000000000000034694469519536141888238489627838134765625
 0.00000000000000173472347597680709441192448139190673828125
 0.000000000000000867361737988403547205962240695953369140625
 0.0000000000000004336808689942017736029811203479766845703125
 0.00000000000000021684043449710088680149056017398834228515625
 0.000000000000000108420217248550443400745280086994171142578125
 0.0000000000000000542101086242752217003726400434970855712890625
 0.00000000000000002710505431213761085018632002174854278564453125
 0.000000000000000013552527156068805425093160010874271392822265625
 0.0000000000000000067762635780344027125465800054371356964111328125
 0.00000000000000000338813178901720135627329000271856784820556640625
 0.00000000000000000169406589450860067813664500135928392410278125
 0.000000000000000000847032947254300339068322500679641962051390625
 0.0000000000000000004235164736271501695341612503398209810256953125
 0.00000000000000000021175823681357508476708062516991049051284765625
 0.000000000000000000105879118406787542383540312584955245256423828125
 0.0000000000000000000529395592033937711917701562924776226282119140625
 0.00000000000000000002646977960169688559588507814623881131410595703125
 0.000000000000000000013234889800848442797942539073119405657052978515625
 0.0000000000000000000066174449004242213989712695365597028285264892578125
 0.00000000000000000000330872245021211069948563476827985141426324462890625
 0.000000000000000000001654361225106055349742817384139925707131622314453125
 0.0000000000000000000008271806125530276748714086920699628535658111572265625
 0.00000000000000000000041359030627651383743570434603498142678290557861328125
 0.000000000000000000000206795153138256918717852173017490713391452789306640625
 0.0000000000000000000001033975765691284593589260865087453566957263946533203125
 0.00000000000000000000005169878828456422967946304325043717834786319732666015625
 0.000000000000000000000025849394142282114839731521625218589173931598663330078125
 0.0000000000000000000000129246970711410574198657608126092945869657993316650390625
 0.0000000000000000000000064623485355705287099328804

2007

changed at July '88
at Lithy Head
Blunt

Kathy / 10/22/01

10/5/94 (i)

Collected equipment
wreckage from airplane
steel drums and
parachute equipment
- 1021 - R.R.T.

| | |
|--------------|-----------|
| 270661026101 | 0/2-23810 |
| 14871 | 1.4-2.2 |
| UCC 1522 | 2.6/70 |

2007 / little road,
4901 / little road,

| | | |
|-------|--------|--------|
| 1 day | 1 hour | 1 year |
| 1 day | 1 hour | 1 year |
| 1 day | 1 hour | 1 year |

| | |
|-----------|--------------|
| over | 1000 |
| 2000 | 1000 |
| Collected | 0.8 - 0.1342 |
| 55 | 1.3 - 1.2 |

(7270) 28MS1
240-100 meps E1

| | | | |
|-------|--------|-------|--------|
| 8 ppm | 1.7 | -2.1 | Sup |
| <Voi | (2082) | 40/10 | 13 |
| Ca | 6070 | 0/8 | 1.7 |
| | | | 0.1642 |

| | | |
|-----|----------------|-------------|
| 200 | VOC (mg/kg/dm) | 3.1-215 |
| 201 | Lead | Particulate |

1

I have a few
 things to say
 to you about
 the future of
 the world.

arrived at daylight
 followed by a crowd of
 to the town and
 from daylight
 followed by

april 1893
Hartford Conn.
to Mr. J. H. Paine

2007

changed at July '88
at Lithy Road
Blunt

Kathy M. Zlot

1945/1

(ii)

United States
Patent Office

Deposited with

[illegible]

to complete collection.
called 502 lab. to
clear away what remains.

1007

→ supplies are logged in system.

1. Not equal, not
 2. Not equal, not

with samples to
Federal Express to
Washington, D.C.

*My dear friend,
I am glad
to hear from you,
and hope you are
well.*

We might
 be full NO:

[illegible]

091284622
010-66711873-1-1-1
010-66711873-1-1-1
010-66711873-1-1-1

[illegible][illegible]

received of the
 of the
 of the

018 - DDGPHZ - 2.1 - 2.5
018 - LGSZ
021 - RRSZ

with a lot of samples
acquired with 10 samples
and at 500 / 8

| | |
|--|--|
| <p> -quired hotel. </p> | <p> at Hotel Winston. </p> |
|--|--|

| | |
|--------|----------|
| 1. 200 | 0/0 1800 |
| | 1. 200 |

Kathy Kitchner

| | | |
|----|-------------------|--|
| 62 | Thursday 14/6/94 | 14/6/94 (12) |
| 63 | Friday 15/6/94 | about evening / rangers and temporary time |
| 64 | Saturday 16/6/94 | no problems about receiving - the new page |
| 65 | Sunday 17/6/94 | re if there are any otherwise, Pauli called her tomorrow. She will have the data report to me by 17 October 1994 |
| 66 | Monday 18/6/94 | Arrived at Site 21 |
| 67 | Tuesday 19/6/94 | Kathryn started Jeff Hunt |
| 68 | Wednesday 20/6/94 | to prepare for ground-water samples |
| 69 | Thursday 21/6/94 | - Calibrated OLM Model C |
| 70 | Friday 22/6/94 | 580 B Serial #1 |
| 71 | Saturday 23/6/94 | 580 B - 30480-279 |
| 72 | Sunday 24/6/94 | 100 ppm Perbactylone |
| 73 | Monday 25/6/94 | Lot # 90375 |
| 74 | Tuesday 26/6/94 | ~ 800 10/10/94 ad |
| 75 | Wednesday 27/6/94 | 1350 10/10/94 |
| 76 | Thursday 28/6/94 | Modified to 021-109mm |
| 77 | Friday 29/6/94 | PZD 0 ppm |
| 78 | Saturday 30/6/94 | Brackground 0 ppm |
| 79 | Sunday 1/7/94 | Kathryn started |

| | | |
|-----|-------------------|-----|
| 80 | Monday 2/7/94 | 250 |
| 81 | Tuesday 3/7/94 | |
| 82 | Wednesday 4/7/94 | |
| 83 | Thursday 5/7/94 | |
| 84 | Friday 6/7/94 | |
| 85 | Saturday 7/7/94 | |
| 86 | Sunday 8/7/94 | |
| 87 | Monday 9/7/94 | |
| 88 | Tuesday 10/7/94 | |
| 89 | Wednesday 11/7/94 | |
| 90 | Thursday 12/7/94 | |
| 91 | Friday 13/7/94 | |
| 92 | Saturday 14/7/94 | |
| 93 | Sunday 15/7/94 | |
| 94 | Monday 16/7/94 | |
| 95 | Tuesday 17/7/94 | |
| 96 | Wednesday 18/7/94 | |
| 97 | Thursday 19/7/94 | |
| 98 | Friday 20/7/94 | |
| 99 | Saturday 21/7/94 | |
| 100 | Sunday 22/7/94 | |

10/6/94

- Decontaminated 7
7 after in battery by
procedures stated on
page 4 of the field
book
- Decontaminated water
used as per procedures
stated on page 4 of
the field book
Calculated 14 Dec
Sewer # 9/1107
conductivity low
152 3167

Lot # 9/E 12701
Linea P17 W 210 lot #
10410 NW 19
221-241, and location
W.L. 1151 (BTO PC)
T.D. 1989 "
W 8.33
V_{add} (8.33) (0.16) = 1.4 gal
V₁₅ 4.1 gallons
are a mercury thermometer
for temperature measurement
X inches interval

(15)

Time 1002 1012 1017 1022 1040
Pumping Cables 4 5.5 6.5 7.8
Started at 955
Temp. 13.3 12.0
pH 8.51 6.52
cloudy cloudy
1/4 battery
821 6.60 cloudy
825 6.65 cloudy
Pumped away - stopped
Pumping collected 21 - 69 med-
6902
(3) done vid W.C. (SW 240 / T.C.)
H.C. Temp. 12.5 8.5
221 - 019 med
location
PID 0 ppm
Background 8 ppm
W.L. 4.83' (BTO R)
T.D. 14.79' " 21' Tiller
- water - covered in battery
decontaminated pump house as
per procedures stated on page 4
of the field book
221 - 1151
V_{add} = 9.96
V₁₅ (9.96) (0.163) = 1.6 gal
K_{add} 3.14

[illegible]

| Time | Grabs | Stated Temp. | purging Card | pH | clarity |
|------|--|--------------|---------------------|---------|----------------------|
| 1330 | | | | | |
| 1345 | 5.00 | 14.5 | 1046 | 6.65 | clear, grey, blue |
| 1351 | 6.5 | 14.0 | 1002 | 6.71 | grey |
| 1355 | 8.0 | 13.5 | 906 | 6.81 | clear, grey, blue |
| 1400 | 9.5 | 13.5 | 788 | 7.06 | clear, brownish |
| 1405 | 11.0 | 13.0 | 778 | 7.15 | clear, brown |
| 1410 | Purging 1/2 | 13.5 | 790 | 7.15 | cloudy |
| 1425 | Stopped | | | | |
| | clump | | | | |
| | Collected | | 021 | | cloudy |
| | (13) 11.0 | 14.0 | 1166 | | clear (swirled 90°) |
| 1430 | collected | | duplicate | | |
| | | | 021-010A MW - 6.002 | | |
| | Temp. 14.5 | | | | |
| | pH 7.15 | | | | |
| | | | | | cloudy - debris |
| | | | | | clean - brownish |
| | | | 021-026 MW location | | |
| | P.D. 0 ppm | | MN | | uniquely white W |
| | Background 0 ppm | | | 547.861 | |
| 1415 | W.L. | 7.65' | (15' 0.12) | | |
| | T.D. | 20.38' | " | | |
| | h = 12.73' | | | | |
| | V _{wall} = (12.73') (0.163) = | | | | 2.1 gal ₂ |
| | V _{wet} x .3 = 6.2 gallons | | | | |
| | | | | | Kathy added. |

| 10/6/64 | Collected field blank from portable water | DAN 65 - F 802 |
|---------|---|----------------|
| 10/6/64 | 10/6/64 | 10/6/64 |
| 10/6/64 | 10/6/64 | 10/6/64 |
| 10/6/64 | 10/6/64 | 10/6/64 |
| 10/6/64 | 10/6/64 | 10/6/64 |
| 10/6/64 | 10/6/64 | 10/6/64 |
| 10/6/64 | 10/6/64 | 10/6/64 |
| 10/6/64 | 10/6/64 | 10/6/64 |
| 10/6/64 | 10/6/64 | 10/6/64 |
| 10/6/64 | 10/6/64 | 10/6/64 |
| 10/6/64 | 10/6/64 | 10/6/64 |
| 10/6/64 | 10/6/64 | 10/6/64 |

| | | |
|---------|---------|---------|
| 10/6/64 | 10/6/64 | 10/6/64 |
| 10/6/64 | 10/6/64 | 10/6/64 |
| 10/6/64 | 10/6/64 | 10/6/64 |
| 10/6/64 | 10/6/64 | 10/6/64 |
| 10/6/64 | 10/6/64 | 10/6/64 |
| 10/6/64 | 10/6/64 | 10/6/64 |
| 10/6/64 | 10/6/64 | 10/6/64 |
| 10/6/64 | 10/6/64 | 10/6/64 |
| 10/6/64 | 10/6/64 | 10/6/64 |
| 10/6/64 | 10/6/64 | 10/6/64 |
| 10/6/64 | 10/6/64 | 10/6/64 |
| 10/6/64 | 10/6/64 | 10/6/64 |

1822 Today July 1947

Departed Dept. of
Hotel for DAVCOB
and airport.
Arrived at DAVCOB
to deliver bag
to change us to
Capt. Shoen's laboratory
and to drop off
shipment of shipping
equipment at base.
Arrived at airport for
flight to San Francisco, IX.

July, 1947

Kathryn Rickett

Black 57
1317 1977

12

5/1/95

1430 Dined at Base Camp.
Talked to Capt. Ketch
and medic. at 2:00

1440 Joe Byrd, Jr. and
Dusty Engenney
arrived at Duluth

1445-
1445 Staked soil being
and motor well continue

1630 Dept Duluth A.N.G.B.

Kathy Fitchett

13

Tuesday 5/2/95

715 Depart Hotel
730 Breakfast and
morning meeting

830 Arrived at Duluth A.N.G.B.
Kathleen Mearns

Joe Byrd, Jr.
Dusty Engenney
Kathy Fitchett

840 Stopped by Base Civil
Engineer - Bruce King
in a meeting until 10:15,
arrived at headquarters

850 to meet Capt. Steve
Waters to obtain
key for Bldg. 247
Phone call. 10-

Optical office to acquire
archival # for box
sent out Friday from
office. The file

(Lloys + forms, etc.)
did not arrive at
the hotel.

Box did not leave the
office until ~ noon
yesterday.
K. Mearns Fitchett

(4)

5/2/95

Airbill # 5344.094/103

all orders - should

arrive at 900 today

Shaded Sun 21

021-026811

021-027811

021-026811

marked station for

depos 20 & 17

Arrived at Site 20

for Byrd, Jr.

Patricia Maine

Dorothy Conway

Kathryn Pittell

Bruce Berg

Finished stacking off Site 16

Put up supplies

Lunch

Returned to Delitch

ANCO

Called American Engineering

Tolson (Dillon)

Left message

~~KD~~

Kathryn Pittell

5/2/95

(5)

Called Beth Garry

(MPCA) to discuss

the following:

the criteria for TPH

for Sites 17 & 21

to 100 ppm

she will check

with Luke (QA/QC)

about the Wisconsin

C-60/D-80 method

for 1711

Walked over Sites 27 &

21 with Bruce Berg

Called ~~Patricia~~ ~~Patricia~~

Made Escobar (Optech)

to confirm that the

contact for the geotechnical

lab is in place at the

contact person is Joe

Palo (215) 741-4290

Called Dillers to

confirm meeting at

the base by 7:30.

Kathleen Meunier &

Kathryn arrived at Site 17

to place backhoe locations

Kathryn P. Pittell

(6)

5/2/95

1625 Left Site 17
1640 Arrived at Duluth
ANGB.
700 Left Duluth ANGB.

Wednesday 5/3/95

645 Arrived at Duluth
ANGB

Kathleen Morrison
Dorothy Greenway
Joe Boyd, Jr.
Kathryn Spitzer

Weather: Cloudy, Temp: low
402-502
700 Check with Bruce

Ray (Base Civil
Engineer) about
cleaning for Site 26
all clean except
26 - some needs to
be moved due to utilities.

705

Called ^{and} ~~Wittman~~ Authority
talked to Rudy Wittman;
inform them of our presence
project at Site 26 - we
should be drilling at Site
26 from 3 May - 5 May
1995.

719

Calibrated PIDs;
Determinator

19961-222
19962-222

Kathryn Spitzer

Kathryn Spitzer

5/3/95

Decontamination 100 gpm
lost #40 8307-417503-40
no documented documents co.
Expenditures - Industrial
Scientific MX251
910/059-002

Imperial Engineering Testing
Jamie Tuura
Gary Mantay
Jonathan Gabrielle

Arrived on site
Duller setting up
to decontaminate
dredging and auger
on side south of
Bldg 246

Kathleen & Kathleen
means will document
decontamination procedures
of drill rig and auger
drilled at Headquarters
to taken to Capt.

waterway at site dunes.
The 21 dunes that were
available are being used.
~ 12 dunes are available
near Bldg 246.

Kathleen Gabrielle

5/3/95 (9)

Duller finished
decontaminating drill
rig and auger.
Blanch

Arrived at Site 26
Health & Safety
Meeting

Jamie Tuura
Gary Mantay
Jonathan Gabrielle
Kathleen Means

Dredging Greenway
Bl. 246 Dr.

Kathleen Gabrielle

Started 026-026011
Collected 025-2.5'
Encountered boulder.

at 3.5' BLS - moved 1.5' South
0 LEL 70.2% O₂

0 0 ppm
0 LEL 20.9% O₂

Collected 5-7' Anterior
0 ppm

Kathleen Gabrielle

955

1045-

1125

1200

1215-

1225

1240

1250

1255

BLG PLD

1252 Boulder

1300

5/15/95

(166)

Problem depart Site 25
Kathleen Norino
and Destiny Greenway-
depart Dubueth ANGB
for Federal Express
(3) soil samples
of (1) duplicate
(1) Trip blank.

Tuesday 5/16/95

(167)

Weather: Cloudy, showers
earlier, showers expected this
morning (?); 50's; gentle
wind - foggy on the hill
645 arrived at Dubueth ANGB

Joe Byrd, Jr.
Kathleen Norino-

Destiny Greenway
Kathryn Pittcher
Calibrated PID &

700

MX251 as per
procedures stated in
Pg 20 of this field
logbook.

745

Health & Safety
meeting

Destiny Greenway
Kathleen Norino
Kathryn Pittcher
James Turner
Jonathan G. G. G.

James Turner informed
us that he felt ill
into the night, he felt
fine this morning
Kathy Pittcher

Kathy Pittcher

5/16/95

Jonathan Gabriel said
that the fumes smelled
nauseating but he felt
fine last night & this
morning.

Everyone else felt
fine.

Try to contact Paul
Wheeler (ANWR) at
7:15 in midday with
Capt. Wabrowitz - Sept

message.

Located at 025-007 B1

Collected 0.5 2.5

0 ppm

0 ppm

0 LEL 20.5% O₂

Collected 5-7'

0 ppm

0 ppm

0 LEL 20.5% O₂

Collected 10-12'

0 ppm

0 ppm

0 LEL 20.5%

Kathy Pritchett

840

Borehole

Collected 15-17'

0 ppm

LEL out - batteries

Diesel believe he may

have encountered water

at ~ 14.5' BLS

Collected 20-22'

0.5 ppm

Borehole

0 ppm

0 LEL 20.4% O₂

Moved to 025-005 B7H

Called Russell Casar

(Optech) informed him

Collected 0.5-2.5

1.5 ppm BG 1.5 ppm

0 ppm

0 LEL 20.5% O₂

Collected 5-7'

1.5 ppm 1.5 ppm BG

0 ppm

0 LEL 20.4% O₂

Collected 10-12'

1.5 ppm BG 1.5 ppm

Borehole

0 ppm

0 LEL 20.4% O₂

Kathy Pritchett

70

5/16/95

Mud adjoining to the
surface ~ 15' BLS
→ may be perched
water (i.e.)

1000

collected 18-20'

0% Recovery

Borehole

0 ppm

0 LEL 20.4% O₂

1345

collected 20-22'

0 ppm

Borehole

0 ppm 0 LEL

1030

20.5% O₂

Drillers decontaminating

equipment as per procedure
stated on page 24

of field logbook

Moved to 0.5-0.4 BH

collected 0.5-2.5'

1117

1/25

0 ppm

collected 5-7'

1135

0 ppm

collected 10-12'

1140

0 ppm

Borehole

0 ppm

0 LEL 20.4% O₂

Kathy Pritchett

5/16/95

71

Borehole

0 ppm

0 LEL 20.4% O₂

1150

collected 18-20' BLS

0 ppm

Borehole

0 ppm

0 LEL 20.4% O₂

1330

Moved 0.1-0.6 BH

1350

collected 0.5-2.5'

0 ppm

1355

collected 4-6'

2.8 ppm

1405

collected 8-10'

0 ppm

Borehole

0 ppm

0 LEL 20.5% O₂

1415

Recollecting 0.5-2.5'

0 ppm

1425

Moved to 0.1-0.7 BH

1438

collected 0.5-2.5'

0 ppm

Borehole

0 ppm

0 LEL 20.5% O₂

1448

collected 4-6' oppm

Borehole

0 ppm

0 LEL 20.5% O₂

Kathy Pritchett

72

5/16/95

1450

collected 8-10' x.s.

D ppm

duplicate collected

moved 021-028BH

collected 0.5-2.5'

D ppm

collected 4-6'

D ppm

water encountered

called Paul Wheeler

(ANGRC) to have

an additional soil boring

west of MGBNS area

— yea. → just

drill 2.0' ~~ft~~ less at

Site 17 for adjustment

of cont.

Dullers grouting

barholes, no per work.

Plan

Arrived at Federal

express

airbill # equipment invoice

1530735790 (1) (4) Soil Samples

1700

airbill

#

1530735790

Kathy Pittman

1717

5/16/95

73

Arrived at Lake

Superior Laboratories

(6) Soil Samples

(1) Duplicate

(1) ms/msd

COC No. 12592

Kathy

Pittman

(74)

Wednesday 5/17/95

Weather: Sunny, cool -
high 50's; low 40's; wind died
at 33°F; windy; NW
10-15 mph

645 Arrived at Duluth AVG
arrived
at low

Destry Greenway
Kathryn Fitchett

for Byrd, Jr.

Kathryn Fitchett

Calibrated PID &

MX251 as per procedure

stated on page 20 of

this field logbook.

Dillner arrived

Janice Turner

Jonathan Galinski

Dillner decontaminating

digress as per procedure.

ended on page 21 of this

field logbook.

finished decontaminating

Sketch & Safety meeting

Janice Turner

Jonathan Galinski

700

730

745

820

5/17/95

(75)

Destry Greenway
Kathryn Fitchett
Kathryn Fitchett

Moved to 025-0121541

(north of meadow area)

Collected 0.5-2.5'

0 ppm

Collected 5-7'

4.6 ppm

0 ppm

0 LEL 20.5% O₂

Collected 10-12'

7.5 ppm

Barhale

8.5 ppm before

0 ppm after sample

0 LEL 20.5% O₂

Collected 18-20'

4.5 ppm

Barhale

3.5 ppm

2 LEL 20.5% O₂

Moved to 025-00884

Collected 0.5-2.5'

0 ppm

Barhale

0 ppm

0 LEL 20.5% O₂

Kathryn Fitchett

(76)

5/17/95

935

Collected 5-7'

0 ppm
0 ppm

Borehole

0 LEL 20.5% O₂

1004

Collected 10-12'

0 ppm

Borehole

0 LEL 20.4% O₂

1015

Collected 16-20'

0 ppm

Borehole

0 LEL 20.5% O₂

1100

Drillers decontaminating

building a ramp as

per procedures stated on

page 24 of this field

logbook

Drillers quoted boreholes

setting up at Site 17

1020-

1100

1100-

1130

1145

Drillers left Ductwork area

to migrate to Site 17

Kath Patelott

(77)

5/17/95

1315

017-024 BH

Collected 0.5-2.5'

0 ppm

1337

Collected 4-6'

0 ppm

Borehole

4 BG 0 LEL 20.5% O₂

Feet 1 Silt 0-6.5'

6.5-10'

Silt w/ lime and

1350

Moved to 017-025 BH

1400

Collected 0.5-2.5'

0 ppm

1405

Collected 4-6' Feet

0 ppm

Borehole

0 LEL

20.5% O₂

Moved to 017-022 BH

1415

Collected 0.5-2.5'

1430

Collected 4-6'

water at 3.5' 20% Recovery

Borehole

0 LEL 20.5% O₂

Kath Patelott

(98)

5/17/95 017-023 BH

1445

Moved to 024BH

Collected 0.5 - 2.5'

1507

0 ppm
Collected 4-6'

0 ppm

Water encountered at ~4' BLS

1520

Moved to 017-028BH

1535

Collected 0.5 - 2.5'

0 ppm

1544

Collected 4-6'

Water encountered 0 ppm

Note: It was a prairie-wildow day at Site 17

1600

Collected effluent
Kimatec - split open

Site 17

WDNR

(3) 40 mL

total HCL

6.25/100

SOX (2270)

11) 1 L amber

Hg (7470)

11) 1 L Poly HNO₃

need Lake Superior lab

at Duluth ANG 0

WDNR

(9) Soil Samples

6.25/100

Equipment Rinsewater

Kathy Pirtsket

(79)

5/17/95

Arrived at Federal

Express

Arrived at Site 17 to

load supplies

Depart Duluth ANG

1715

1745

1830

KD

Kathy Pirtsket

(80)

Thursday 5/16/95

Weather: Sunny; 60°
Arrived at Duluth
ANL-8

Joe Byrd, Jr.
Desty Greenway
Kathleen Marin
Kathryn Pittblott

7:15 PID were calibrated
by Joe Byrd, Jr.
as per procedures stated
in page 20 of this

field notebook
Called (Kathleen)

2:230

Like Superior Lab-
(Tim Buck) to confirm
obtaining analytical
results for soil
samples delivered
Tuesday + Wednesday —
stated that these were
a 24-hour turnaround
called Russell Cason
about the above —
off he will inform
Mark E. Overman (Optek)
Kathryn Pittblott

5/18/95 (81)

940 arrived at 025-001m
Kathleen Marin
Kathryn Pittblott
Joe Byrd, Jr. ad
Desty Greenway
at Site 26 collecting
groundwater samples

~ 815

1018 PID 22.640 ppm
W.L. = 22.94 ft BTOC 48
TD = 39.81, BTOC 22.00

Transducer 17.10

1146 Start slug test
— injection at 025-001m

1240

stopped test

Started withdrawal

test at 025-001m

Stopped test

Stopped to cool down

— been in sun too
long.

025-003m

53.0 ppm

W.L. 46.04 ft BTOC

TD 22.00, BTOC

Kathryn Pittblott

(82)

5/18/95

1531 11:05 AM Tundra
Static
1534 Start injection
test - 025-03ms
1638 Stopped test
1646 Started withdraw
test
1800 Stopped test
1845 Depart Duluth
ANG 13

Friday 5/19/95

(83)

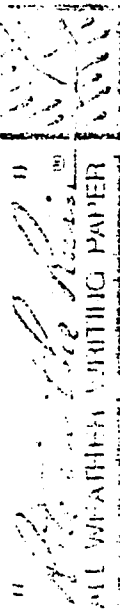
Weather: Sunny; 50-60°
Light winds;
645 Arrived at Duluth ANG
Doting Greenway
Kathleen Merino
Joe Synd / Jr.
Kathy Pritchett
715 Calibrated PIDs &
MXC 51 as per procedure
stated on page 20 of the
field logbook
825 Called VREM -
will meet them at
1530 at site 25
830 Puller arrived with
drill rig
835 Health & Safety meeting
Doting Greenway
Kathleen Merino
Jignie Turner
Jingnan Cyprial
Kathy Pritchett
844 Arrived at 017-051044
853 Collected 0.5-2.5
25% recovery
Kathy Pritchett

SP

Kathy Pritchett

800-937-6MAN

3



Joe Byrd, Jr.

Project Scientist

4100 NW Loop 410, #230

SAN Antonio, TX 78229

Phone: (210) 731-0000 1-800-677-8072

DULUTH 1315-197

c/o CAPT. Stephen Wabrowetz

148 FG/UGPT, Bldg. 240

4625 Deuce, Duluth, MN 55811

(218) 723-7475

(218) 723-7476 (FAX)

Radisson Hotel - Duluth

505 W. Superior Street

DULUTH, MN 55802

(218) 727-8981

J.L. DASHING CORPORATION
DULUTH, MN 55802 USA

DAY 16

63

WEDNESDAY

17 MAY 15

0545 Leave hotel

BREAKFAST (0.5)

0635 On base

Set up & PROGRAM GC.

Build 10 PPM, 1 PPM, &

100 PPB BTX STDs.

GAIN

1,000

CARRIER GAS FLOW

12 μ l/min

Injection Vol

100 μ l

GC OVEN Temp

90°C

ANALYSIS Time

460 sec

0726 100 PPB BTX STD.

Good Run, Set Library. JB

NO O-Xylene. Increase Run

Time to 500 sec.

0742 100 PPB BTX STD

NO O-Xylene.

--- Adjust DRV 3 & DRV 4

Lo (S + A/6)

0757 100 PPB BTX STD

Good Run. Set Library

0815 1 PPM BTX STD

Good Run. Set Library

17 MAY 95

(64)

0830 10 PPM BTEX STD
0845 Good Run. Set Library
AIR BLANK

● Benzene 1 ppb
● Toluene 12 ppb
● mP-Xylene 83 ppb
● o-Xylene 20 ppb
0858 021-027BH 4'-6'

10g

● Benzene 1 ppb
● Toluene 3 ppb
● mP-Xylene 31 ppb
● o-Xylene 11 ppb
0910 021-027BH 8'-10'

10g

● Toluene 3 ppb
● E-Benzene 3 ppb
● mP-Xylene 8 ppb
● o-Xylene 4 ppb
0921 AIR BLANK

10g

● Benzene 2 ppb
● Toluene 1 ppb
0934 021-028BH 05'-2.5'

● Toluene 2 ppb
● E-Benzene 2 ppb
● mP-Xylene 3 ppb

St. Brink

17 MAY 95

(65)

| | | | |
|-------------------------------|-----------|---------|-----|
| ● O-Xylene | 2 ppb | | |
| 0946 021-028BH | | | |
| ● Toluene | 2 ppb | | |
| ● E-Benzene | 3 ppb | | |
| ● MP-Xylene | 5 ppb | | |
| ● O-Xylene | 5 ppb | | |
| 0958 100 PPB BTX STD | | | CAL |
| Benzene | 97 ppb | 100 ppb | |
| Toluene | 70 ppb | 100 ppb | |
| E-Benzene | 62 ppb | 100 ppb | |
| MP-Xylene | 119 ppb | 200 ppb | |
| O-Xylene | 51 ppb | 100 ppb | |
| 1013 AIR BLANK | | | |
| ● Benzene | 3 ppb | | |
| ● E-Benzene | 1 ppb | | |
| 1034 025-012BH | 0.5'-2.5' | 10g | |
| ● Benzene | 3 ppb | | |
| ● Toluene | 21 ppb | | |
| ● E-Benzene | 17 ppb | | |
| ● O-Xylene | 39 ppb | | |
| 1040 025-012BH | 5'-7' | 10g | |
| ● A lot of Peaks, No Readings | | | |

J. B. [Signature]

GC PROCEDURES

17 MAY 95

(66)

| | | | |
|--------------------|--------------------|--------------|-----------------|
| 1101 | 025-012BH | 5'-7' Reshot | 10g |
| --- 20ul injection | | | |
| ● ALL ND'S | | | |
| 1112 | 025-012BH | 10'-12' | 10g |
| ● Benzene | | | |
| ● Toluene | | | |
| ● E-Benzene | | | |
| ● O-Xylene | | | |
| 1124 | 025-012BH | 18'-20' | 10g |
| ● Benzene | | | |
| ● Toluene | | | |
| CLEAN AREA | | | |
| 1145 | 4400 33 | Goto Site 17 | |
| 1200 | Lunch (1.0) | | |
| 1300 | At Site 17 | Goto B252 | |
| 1321 | 100 PPB | BTEx STD. | CAL |
| Benzene | | | 77 ppb 100 ppb |
| Toluene | | | 84 ppb 100 ppb |
| E-Benzene | | | 80 ppb 100 ppb |
| MP-Xylene | | | 151 ppb 200 ppb |
| O-Xylene | | | 78 ppb 100 ppb |

JB

J. Byrd

17 MAY 95

(67)

1336 AIR BLANK

- Benzene 3 ppb
- E-Benzene 1 ppb
- O-Xylene 73 ppb

1347 025-013BH

- Benzene 4 ppb
- Toluene 3 ppb
- E-Benzene 1 ppb
- MP-Xylene 3 ppb

1359 025-013BH

- Benzene 3 ppb
- Toluene 2 ppb
- E-Benzene 20 ppb
- O-Xylene 106 ppb

1411 025-013BH

- Benzene 4 ppb
- Toluene 2 ppb
- E-Benzene 4 ppb
- MP-Xylene 2 ppb

1429 025-013BH

- Benzene 10 ppb
- Toluene 17 ppb
- E-Benzene 3 ppb
- O-Xylene 4 ppb

12g

10g

10g

10g

J. Byrd

17 MAY 95

(68)

PROCEDURE

| 1441 | 100 PPB BTX STD | 96 | 92 | 87 | 178 | 93 | 100 | 100 | 100 | 200 | 100 |
|------|-----------------|-----------|-------|-------|-------|-------|-----|-----|-----|-----|-----|
| | Benzene | 1 ppb | 1 ppb | 1 ppb | 1 ppb | 1 ppb | 100 | 100 | 100 | 200 | 100 |
| | Toluene | | | | | | | | | | |
| | E-Benzene | | | | | | | | | | |
| | MP-Xylene | | | | | | | | | | |
| | O-Xylene | | | | | | | | | | |
| | --- | | | | | | | | | | |
| 1509 | AIR BLANK | | | | | | | | | | |
| | ● BENZENE | 1 ppb | | | | | | | | | |
| 1521 | 017-024BH | 0.5-2.5' | | | | | | | | | 6g |
| | ● BENZENE | 1 ppb | | | | | | | | | |
| | ● E-Benzene | 8 ppb | | | | | | | | | |
| | ● O-Xylene | 13 ppb | | | | | | | | | |
| 1533 | 017-024BH | 4'-6' | | | | | | | | | 10g |
| | ● BENZENE | 4 ppb | | | | | | | | | |
| | ● Toluene | 1 ppb | | | | | | | | | |
| | ● MP-Xylene | 44 ppb | | | | | | | | | |
| 1546 | 017-024BH | 8'-10' | | | | | | | | | 15g |
| | ● 5 | | | | | | | | | | |
| 1546 | 017-024BH | 0.5'-2.5' | | | | | | | | | 10g |
| | ● BENZENE | 6 ppb | | | | | | | | | |
| | ● Toluene | 1 ppb | | | | | | | | | |
| | ● E-Benzene | 4 ppb | | | | | | | | | |

H. Byrd

GC PROCEDURES

(69)

17 MAY 95

| | | | |
|------|-----------------|---------|---------|
| 1558 | ● MP-Xylene | 9 ppb | 15g |
| | ● 017-024BH | 8-10 | |
| | ● Benzene | 11 ppb | |
| | ● E-Benzene | 16 ppb | |
| | ● O-Xylene | 4 ppb | |
| 1610 | ● 017-025BH | 4-6 | 10g |
| | ● Benzene | 6 ppb | |
| | ● Toluene | 1 ppb | |
| | ● E-Benzene | 4 ppb | |
| 1622 | 100 PPB BTX STD | | CAL |
| | Benzene | 96 ppb | 100 ppb |
| | Toluene | 81 ppb | 100 ppb |
| | E-Benzene | 64 ppb | 100 ppb |
| | MP-Xylene | 115 ppb | 200 ppb |
| | O-Xylene | 108 ppb | 100 ppb |

1636 AIR BLANK

| | | | |
|------|-------------|---------|-----|
| 1648 | ● Benzene | 5 ppb | 10g |
| | ● E-Benzene | 4 ppb | |
| | ● Toluene | 4 ppb | |
| | ● O-Xylene | 4 ppb | |
| | ● 017-022BH | 0.5-2.5 | |
| | ● Benzene | 5 ppb | |
| | ● Toluene | 3 ppb | |

[Signature]

17 MAY 95

(70)

| | | |
|----------------|-----------|-----|
| ● E-BENZENE | 7 ppb | 10g |
| ● MP-XYLENE | 12 ppb | |
| ● O-XYLENE | 1 ppb | |
| 1659 017-0238H | 0.5'-2.5' | |
| ● BENZENE | 3 ppb | |
| ● TOLUENE | 3 ppb | |
| ● E-BENZENE | 7 ppb | |
| ● MP-XYLENE | 9 ppb | |
| 1713 017-0238H | 4'-6' | 10g |
| ● BENZENE | 10 ppb | |
| ● TOLUENE | 3 ppb | |
| ● E-BENZENE | 37 ppb | |
| ● MP-XYLENE | 98 ppb | |
| 1724 017-0286H | 0.5'-2.5' | 10g |
| ● BENZENE | 13 ppb | |
| ● TOLUENE | 3 ppb | |
| ● E-BENZENE | 4 ppb | |
| 1736 017-0288H | 4'-6' | 6g |
| ● BENZENE | 3 ppb | |
| ● E-BENZENE | 5 ppb | |



Continued in Book 2



FRIDAY

14 MAY 45

0545 leave hotel
Breakfast (0.6)

0645 On Base
load truck

0710 Fire-up GC. Build 10 PPM,
1 PPM, & 100 PPM BTEX
STD's

0740 AIR FLOW IS NOT WORKING RIGHT.
CALL EIS to see if they
can troubleshoot.

0757 Drive KP to Site 17.

0825 BACK @ B252.

TALK to M. Alexander.
Fiddle w/ GC.

It won't go. Call EIS.

Ren is out. Waiting on

his call back

0912 Goto Site 17 to

approve KP of situation

0945 BACK @ B252

CALL EIS.

Attempt to backflush.

JTB

MEASUREMENT CONVERSIONS

| IF YOU KNOW | MULTIPLY | TO GET |
|------------------------|----------|------------------------|
| BY | BY | |
| Length | | |
| inches | 2.540 | centimeters |
| feet | 30.480 | centimeters |
| yards | 0.914 | meters |
| miles | 1.609 | kilometers |
| centimeters | 0.039 | inches |
| meters | 0.923 | yards |
| kilometers | 0.621 | miles |
| Weight | | |
| grams | 2.205 | ounces |
| kilograms | 2.205 | pounds |
| ounces | 0.035 | kilograms |
| pounds | 0.454 | kilograms |
| Volume | | |
| liters | 1.057 | quarts |
| gallons | 3.785 | liters |
| quarts | 0.946 | liters |
| pints | 0.473 | liters |
| fluid ounces | 0.030 | liters |
| dry quarts | 0.946 | liters |
| dry gallons | 3.785 | liters |
| Temperature | | |
| Fahrenheit | 5/9 | Celsius |
| Celsius | 9/5 | Fahrenheit |
| Area | | |
| square feet | 0.093 | square meters |
| square yards | 0.836 | square meters |
| square miles | 2.6 | square kilometers |
| Acres | 0.405 | hectares |
| Speed | | |
| miles per hour | 1.609 | kilometers per hour |
| kilometers per hour | 0.621 | miles per hour |
| Feet per second | 1.094 | meters per second |
| Meters per second | 0.911 | feet per second |
| Pressure | | |
| pounds per square inch | 6.895 | kilopascals |
| kilopascals | 0.145 | pounds per square inch |
| Energy | | |
| calories | 0.000418 | kilocalories |
| kilocalories | 2.389 | calories |
| British thermal units | 1.055 | kilocalories |
| kilocalories | 0.948 | British thermal units |
| Power | | |
| watts | 0.00134 | horsepower |
| horsepower | 746 | watts |
| Force | | |
| newtons | 0.225 | pounds |
| pounds | 4.448 | newtons |

J.I. DOHERTY CORPORATION

A. Kathleen Merino (K.M.)
 4100 NW Loop 410, Ste 230
 San Antonio, TX 78229
 (210) 731-0000 1-800-677-8072
 Duluth ST Sites 26, 25
 Radisson Hotel (218) 727-8781

J.I. DOHERTY CORPORATION
 10000, WA 98421 360-4184

16 May 95
0545

0630
0645
0800

0820

0827
0835
0840
0850

0900

0935

0940

0950

1001

1015

1020

1025-

1110

Met hotel, breakfast
Planning meeting
Left for base and
arrived at base
Set up for site
and H & S briefing
collected 5-2.5
at 025-007814

Sample 6 5-7
" 10-12 LAB #12
" 15-17
" 20-22

TD = 22'
Moved to 025-005814

Sample 6 0.5-2.5
" 5-7 No. rec.
" 10-12 LAB #12
" 18-20 No. rec.
" 20-22

TD = 22'
Dredgers remove auger
Pull down auger

A. K.

1115
1125
1135
1140
1150
1200
1300-
1330
1355
1400
1405
1415
1430-
1435
1440
1450
1458

1510
1525
1535
1535 again
1535

ID=61

Setup at 025-004RM
Sample @ 5-2.5
" 5-7
" 10-12 LAB 11.5-
" 18-20 LAB 11.5-
UNPH

Set up at site 21
Setup 21-026 BH
Sample @ 5-2.5 RD _{new}
" 4-6
" 8-10 LAB 9.0-
" 5-2.5 LAB 2.0-
Move to 21-027 BH

Sample @ 5-2.5
" 4-6 LAB 5.5-
" 8-10 LAB
Sample 9.5-10 ^{marked} 9-10
Sample 7.0-9.5 ^{marked} 8-9
Move to 026-028BH

Sample @ 5-2.5
LAB 2.0-2.5 ^{AS/MS} 01.5-2.0
Sample @ 8-10 ^{marked} 4-6
LAB 5.5-6.0

A. J. [Signature]

16 May 95
1400-0741
1800

Packed sample cooler;
unpacked supplies;
took equip blanks;
shipped sampler
from Site 25 at
Feed EX and
dropped Site 21
sample @ Lake
Superior Lab
END OF DATA

2/14/0

2/14/0

2/14/0

17 May 95

12.13 at K.W. collected drum

1005 sample @ 10-12 11.5-11.1 AB
1015 " 18-20

1030- Broke down site
1330 set up at site 17,
L.W. NHC

1333 Sample @ 1.5-2.5 1.5-2 LAB
1340 " 4-6 5-5.5 LAB
1345 " 8-10 no lab

1355 from [017-024 BH]
1400 Moved to [017-025 BH]
1405 Sample @ 5-2.5 1.5-2 LAB
" 4-6 5-5.5 LAB

1410 Moved to [017-022 BH]
1425 Sample @ 5-2.5 1.5-2 LAB
1430 " 4-6 NO LAB

1450 Moved to [017-023 BH]
1455 Sample @ 5-2.5 1.5-2 LAB
1502 " 4-6 5-5.5 LAB

1500 Moved to [017-028 BH]
1535 Sample @ 5-2.5 1.5-2 LAB
1545 " 4-6 5-5.5 LAB

A. K. M.

17 May 95
1600 L
1845

Pack coolers, clean-
up site, went
to Fed EX to
drop off samples
return to Site 17.
Packed supplies
Returned to
Hotel
END OF DAY

1845

1845

A. V. V.

18 May
0545

Weather: sunny, warm to 75°
Met in lobby, breakfast
Planning meeting
Arrived base about
Prepared for sampling
and ~~about~~ slug

0630

Resting.

0745-
0815
0830

Went to hardware
store for supplies.
Called Mike Superior
Lab. Tim will send

GRO results now, and
DRO will come later.
Results from yesterday
are to be fax tonight

0835
0915

K.P. calling office
Finish packing
supplies and preparing
sample bottles.

1000

Packed down
drillers to obtain
sample. Monitor well
preps for sampling

A. K. R.

| | |
|-------|--------------------|
| 1015 | Started sleep test |
| | for 025-00, MW |
| 1337 | Stopped test |
| 1545- | Obtained lunch and |
| 1515 | brought supplies |
| 1530 | Started test for |
| | 025-003 MW |
| 1800 | Stopped test |
| 1830 | Left base |
| 1900 | Arrived back at |
| | hotel |
| | END OF DAY |

Alma

[Signature]

19 May 95 Sunny, warm, 70°F ☺
 0643 Arrive at base and
 load supplies
 Move to Site 17 and
 prepare for drilling
 Setup one (017-31BH)
 Sample ① 5-2.5 polat
 " 4-6 (5.5-6
 " 5-2.5 11-12
 " 5-2.5 (2-2.5
 Move to 017-021BH
 Sample ① 5-2.5 (2-2.5
 " 4-6 (5.5-6
 Move to 017-032BH
 Sample ① 5-2.5 (2-2.5
 Move to 017-030BH
 Sample ① 5-2.5 (2-2.5
 " 4-6 (5.5-6
 Move to 017-029BH
 Sample ① 5-2.5 (no recovery)
 " 4-6 11-12
 Sample ① 5-2.5 (2-2.5
 " 4-6 (5.5-6
 " 5-2.5 (5.5-6
 1032

0715-
 0800
 0835
 0845
 0858
 0901
 0910
 0920
 0925
 0945
 1000¹⁴⁴
 1000
 1015
 1020

0715-
 0800
 0835
 0845
 0858
 0901
 0910
 0920
 0925
 0945
 1000¹⁴⁴
 1000
 1015
 1020

19 May 95
1100-1200 ^{noon}
1200-1345
1500
1500-1800

1800-1830

1830-
1900

LUNH
Sleep Test
025-002MW
Pack supplies
and samples
decon sleep
equipment
Drop samples
at FedEx
Flight cancelled
return to Radisson
Hotel

WALD

A. K. M.

Destry Greenway with
Operational Technologies
4100 NW Loop 410 Ste. 230
San Antonio, TX 78229
1-800-677-8072

Duluth ANG 1315-197

(14)

Wednesday 5-10-95

0555 Leave motel
 0640 Depart breakfast
 0645 Arrive at base. Set up decon, get ready for drilling at Site 25.
 0740 Begin decon (see pg. 1)
 0810 Health and Safety meeting with drillers and Optech crew.
 0815 Resume decon
 1130 Decon complete. Break for lunch
 1230 Return from lunch. Observe drillers completing well. Move decon equip. to next well.
 1420 Begin decon
 1700 Decon complete. Check on Joe at Site 26.
 1755 Leave base

No further entries
 D-37 Drummy

(15)

Thursday 5-11-95

0550 Leave motel
 0640 Depart breakfast
 0645 Arrive at base. Set up decon. prepare for day's drilling.
 0740 Health and Safety meeting with drillers and Optech crew.
 0815 Copy log forms and field notebooks
 0900 Copying complete. Observe Joe and GIC work.
 1100 Break for lunch
 1205 Arrive at Site 17 to check stakes
 1225 Arrive at base. Prepare for 225-003 MW.
 1400 Begin decon (see pg. 1)
 1505 Decon complete. Break down everything.
 1650 Leave base

No further entries
 D-37 Drummy

(16)

Friday 5-12-95

0550 Leave motel
 0640 Depart breakfast
 0650 Arrive at base. Calibrate Hydacs
 and turbidity meters.
 0710 ~~Calibrate~~ Set up decon.
 0725 Health and Safety meeting with
 drillers and Optech crew.
 1015 Begin decon (see pg. 1) on Site 25
 boreholes
 1130 Break for lunch
 1240 Return from lunch. Begin decon.
 1600 Decon complete. Break down equip.
 Prepare for Monday.
 1725 Leave base
 1730 Arrive at FedEx
 1740 Leave FedEx

No further entries
 Duty Done

(17)

Monday 5-15-95

0550 Leave motel
 0640 Depart breakfast
 0645 Arrive at base. Set up decon, other
 equip.
 0800 Begin decon (see pg. 1)
 0930 Health and Safety meeting
 0935 Resume decon
 1130 Break for lunch
 1220 Return from lunch. Resume decon
 1225 Go to store to get supplies.
 1300 Return to base. Resume decon
 1430 Decon complete. 025-002BH
 was discontinued because of
 LEL alarm after conferring with
 drillers.
 1520 Resume decon
 1655 Decon complete. Break down
 equip.
 1735 Leave base
 1740 Arrive at FedEx
 1750 Leave FedEx

No further entries
 Duty Done

(18)

Tuesday. 5-16-95

0550 Leave motel
0640 Depart breakfast
0645 Arrive at base. Set up decon. Prepare
0745 for day.
Health and Safety meeting with
drillers and Optech crew.
0810 Begin decon (see pg. 1)
1200 Decon complete. Break for lunch
1320 Return from lunch. Resume decon
1605 Decon complete. Break down
equip.
1740 Leave base

~~No further entries
Deetz Drummy~~

(19)

Wednesday 5-17-95

0555 Leave motel
0620 Arrive at base
0730 Begin decon (see pg. 1)
0825 Health and Safety meeting
0825 Decon complete. Break down
equip.
1055 Leave Site 25
1115 Arrive at Site 17. Set up equip.
for sampling.
1155 Break for lunch
1310 Return from lunch
1325 Begin decon
1705 Decon complete. Pack up equip.
1800 Leave Site 17
1810 Arrive at Base
1825 Leave base

~~No further entries
Deetz Drummy~~